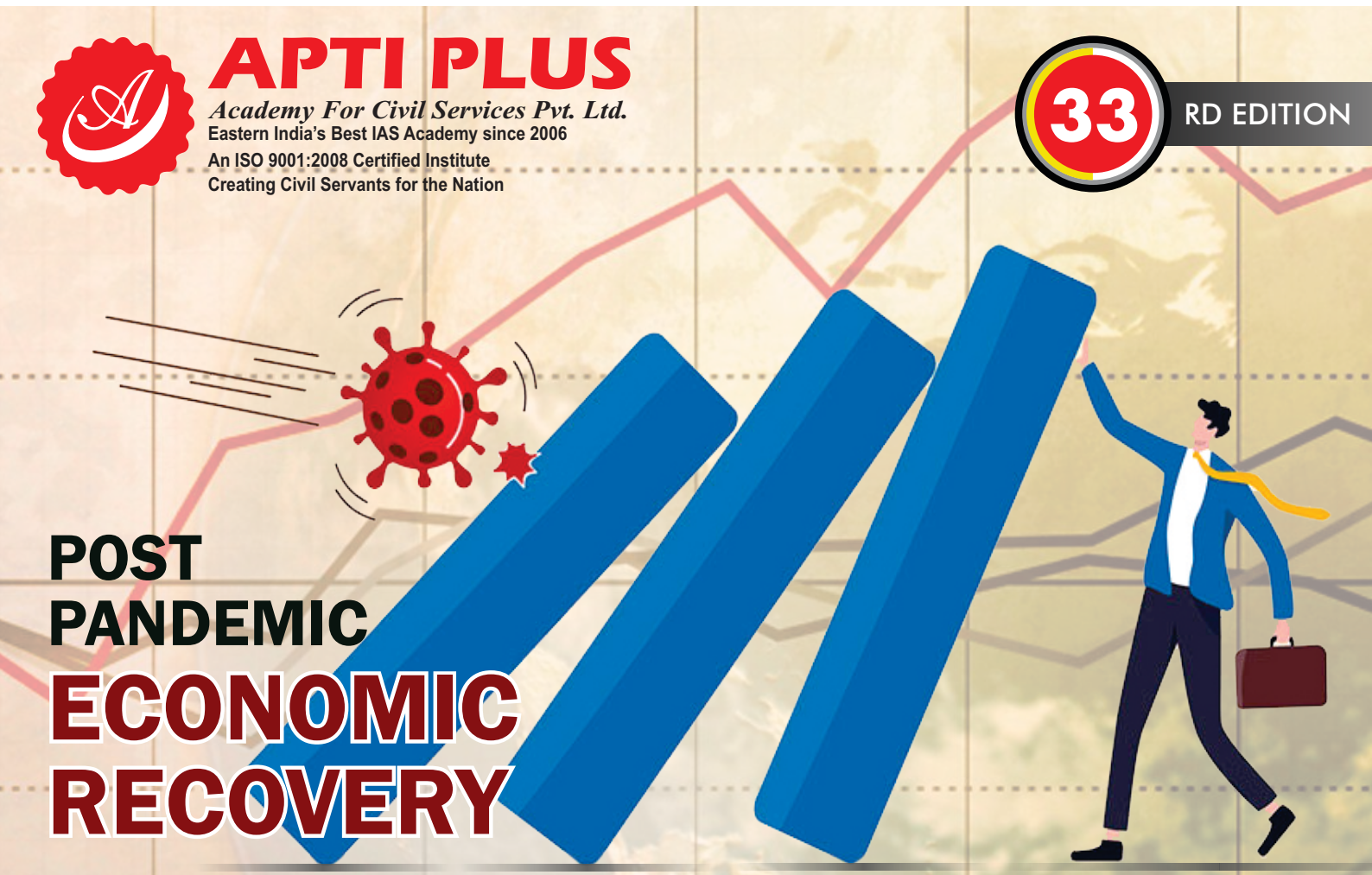
THE IAS GAZETTE

A House Journal of **APTI PLUS**

FEBRUARY 2021

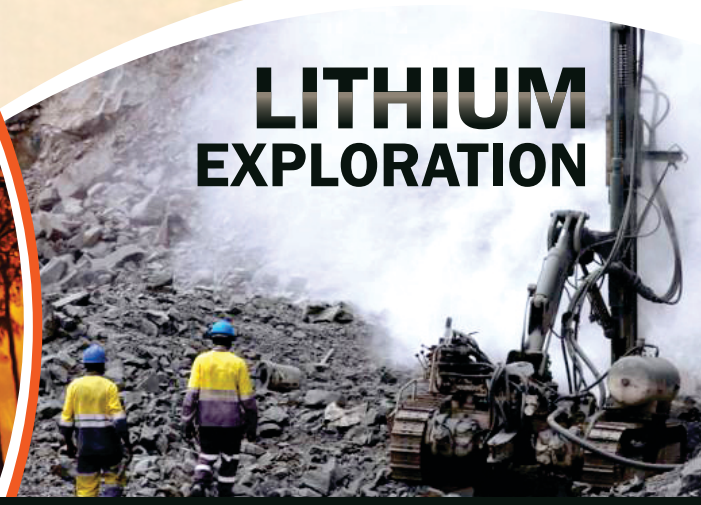
APTI PLUS
Academy For Civil Services Pvt. Ltd.
Eastern India's Best IAS Academy since 2006
An ISO 9001:2008 Certified Institute
Creating Civil Servants for the Nation

33 RD EDITION



POST PANDEMIC ECONOMIC RECOVERY

FOREST FIRES



LITHIUM EXPLORATION

A Monthly Periodical for aspirants of UPSC Examination

VISIT…

FEBRUARY 2021

THE IAS GAZETTE

A House Journal of **APTI PLUS**

Sources
The Hindu | The Indian Express
Live mint | The Economic Times
PIB | PRS | ET
Government & World Reports
(NITI Aayog, Budget, WEF
Economic Survey etc.)
Hindu Business Line | NCERTs
All standard reference books

HEAD OFFICE & KOLKATA CAMPUS
Office no. 803, "AMP Mall Vaisaakkhi"
8th floor, Salt Lake Sector – II,
Salt Lake City - AG 112, Kolkata-700091
Ph: +91-8820341777

BHUBANESHWAR CAMPUS
Plot No. 2280, Biju Pattanaik
College Road,Jaydev Vihar,
Bhubaneswar, Odisha-751013
Phone: 099383 86166

ELGIN ROAD
Elgin Chambers, 3rd Floor, Room No. 302,
1A, Ashutosh Mukherjee Road, Kolkata-20
mail: apti.plus@gmail.com,
Ph: (033)-40645777, +91-8100765577

E-mail
apti.plus@gmail.com
theiasgazette@gmail.com
Website: http://www.aptiplus.in

CONTENTS

GS-I 1-52

FOREIGN ARCHITECT'S CONTRIBUTION TO INDIA	1
LEGACY OF SUBHASH CHANDRA BOSE	2
BASAVANNA	7
B. R. AMBEDKAR	7
HARVEST FESTIVALS OF INDIA	10
BATTLE OF BHIMA-KOREGAON	12
YAKSHAGANA	12
THIRUVALLUVAR	15
GURU GOBIND SINGH	15
VEER SAVARKAR	17
SREE NARAYANA GURUDEV	18
LALA LAJPAT RAI	19
GOVIND BALLABH PANT	20
TRADITIONAL TOY INDUSTRY	21
PATHARUGHAT PEASANT UPRISING	26
JALLIKATTU	27
JAGANATH TEMPLE	29
SEDIMENTARY BASINS	30
SOUTHWEST MONSOON 2020 REPORT	32
CLIMATE OF INDIA IN 2020 REPORT	33
ASTEROIDS	34
M SAND	35
VANADIUM RESERVES IN INDIA	38
WESTERN DISTURBANCES	40
POLAR VORTEX	41
K2	45
LITHIUM EXPLORATION	45
PARADIP PORT	49
ESTONIA, PARAGUAY AND DOMINICAN REPUBLIC	50
DOPPLER WEATHER RADARS	51

Disclaimer:
The views and opinions expressed in this Journal are of the authors' and do not necessarily reflect the views of the Government or the organization they work for.

Arise, awake and stop not till the goal is reached.
- Swami Vivekananda

FEBRUARY 2021

THE IAS GAZETTE

A House Journal of APTI PLUS

CONTENTS

GS-II 53-82

ANTI-LOVE JIHAD ORDINANCE 53
FEDERALISM & INTERSTATE WATER GOVERNANCE 54
JUDUCIAL ACTIVISM 56
REGULATION OF ELETRONIC MEDIA 58
MERCY PETITION & CAPITAL PUNISHMENT 59
INTER-FAITH MARRIAGE 62
MEDICAL TERMINATION OF PREGNANCY 64
LABOUR LAWS & GENDER ROLES IN INDIA 66
VALUE OF HOUSEWORK 66
INSTITUTIONS OF EMINENCE' SCHEME 68
DIGITAL DIVIDE IN EDUCATION 69
JAYA JAITLEY TASK FORCE 71
UN SECURITY COUNCIL 73
INDIA AT UNSC 74
RECLAIMING SAARC 77
INDIA AND THE WORLD IN 2021 79
INDIA-GCC RELATIONS 81

GS-III 83-120

AGRI-FOOD POLICY FOR INDIA 83
K-SHAPED ECONOMIC RECOVERY 86
BAD BANKS 88
CENTRAL BANK DIGITAL CURRENCY 89
POST-PANDEMIC ECONOMIC RECOVERY 91
RoDTEP SCHEME 94
RUTHENIUM 106 97
INSACOG 98
COVISHIELD AND COVAXIN 98
BIRD FLU 99
MUKUNDPURA METEORITE 101
HELIOPHYSICS MISSION 102
ASTROSAT 103
5G 104
LUMPY SKIN DISEASE 106
ATAL TINKERING LABS 108
FOREST FIRES 109
SINGLE-USE PLASTIC 110
PONG DAM SANCTUARY 112
CAFE-2 AND BS-VI STAGE-II 113
SAATHEE PORTAL 115
LIGHT COMBAT AIRCRAFT TEJAS 117
DEEPFAKES 118
REALSENSE ID 119

GS-IV 121-127

MARTYR'S DAY: RELEVANCE OF BAPU'S IDEALS

MISCELLANEOUS 128-185

MANNATHU PADMANABHAN 128
G KISHAN REDDY COMMITTEE 128
WORLD'S OLDEST CAVE PAINTING 128
GAVI GANGADHARESHWARA TEMPLE 129
TRIPURI RISA 129
TIME CAPSULE 129
GIBRALTAR 130
BANANA GRIT 130
MAGNETOTELLURICS (MT) 130
THOUSAND ISLANDS 131
CHAD 131
SEMERU VOLCANO 131
JIADHALRIVER 132
RATLE HYDRO ELECTRIC (HE) PROJECT 132
ARCTIC CIRCLE 133
RAM SETU 133
FLASH DROUGHT 133
PONG DAM 134
GEOHAZARDS 135
KOCHI-MANAGALURU NATURAL GAS PIPELINE 135
HORIZONTAL AND VERTICAL QUOTAS 135
BROADCAST AUDIENCE RESEARCH COUNCIL (BARC) INDIA 136
QUESTION HOUR 136
LAW COMMISSION 137
NORTH EASTERN COUNCIL 137
CORRUPTION PERCEPTIONS INDEX (CPI) 2020 138
INDIAN SARS-COV-2 GENOMIC CONSORTIA (INSACOG) 138
FSSAI SLASHES LIMIT FOR TRANS FAT LEVELS IN FOODS 139
CRIMES AGAINST PERSONS WITH DISABILITIES 140
OXFAM'S 'INEQUALITY VIRUS REPORT' 141
COVID-19 PERFORMANCE INDEX 141
ONLINE SCHOOLING 142
STARS PROJECT 143
OPEC+ 144
GRAND DAM ON NILE 144
INTERNATIONAL SOLAR ALLIANCE 145
OPEN SKIES TREATY 145
GLOBAL ALLIANCE FOR VACCINES AND IMMUNIZATION 146
GULF COOPERATION COUNCIL 146

FEBRUARY 2021

THE IAS GAZETTE

A House Journal of APTI PLUS

CONTENTS

MISCELLANEOUS 128-185

CHABAHAR PORT 146
G7 SUMMIT 147
FUTURE INVESTMENT INITIATIVE 148
DIGITAL PAYMENT INDEX 148
BANK INVESTMENT COMPANY (BIC) 149
INNOVATION PORTAL 150
SAATHEE PORTAL 150
SINGLE-WINDOW CLEARANCE FOR COAL 150
EBITDA 151
NATURAL CAPITAL ACCOUNTING AND VALUATION OF THE ECOSYSTEM SERVICES (NCAVES) INDIA FORUM-2021 151
RAILWAYS BUSINESS DEVELOPMENT PORTAL 151
INDIA INNOVATION INDEX 152
SECTION 32 A OF THE INSOLVENCY AND BANKRUPTCY CODE (IBC) 152
LEGAL ENTITY IDENTIFIER (LEI) SYSTEM 153
PAYMENT INFRA DEVELOPMENT FUND SCHEME 153
INTERNATIONAL FINANCIAL SERVICES CENTRES AUTHORITY (IFSCA) 153
PARADIP PORT 154
NEW IRON ORE POLICY 155
PRARAMBH: STARTUP INDIA INTERNATIONAL SUMMIT 155
NEW PORTAL FOR FREIGHT TRANSPORTATION 155
TRIFOOD PARKS 156
SAGARMALA SEAPLANE SERVICES (SSPS) 157
INDIA'S FIRST LITHIUM REFINERY 158
CENTRAL SECTOR SCHEME FOR INDUSTRIAL DEVELOPMENT OF JAMMU & KASHMIR 158
NATIONAL INTERNET EXCHANGE OF INDIA 158
'RECOILING' BLACK HOLES 159
NATIONAL INNOVATION FOUNDATION 159
ACTIVE MATTER SYSTEMS 160
INDIA SCIENCE 160
COLLABCAD 161
LEOPARD CENSUS REPORT 161
'SAVE MOLLEM' CAMPAIGN 162
HEDYCHIUM CORONARIUM 163
DEEPOR BEEL WILDLIFE SANCTUARY 164
STATE OF THE CLIMATE REPORT 164
MUDUMALAI TIGER RESERVE 164
UMED PAONI KARANDLA WILDLIFE SANCTUARY 165
GANGETIC RIVER DOLPHIN 165
ADVANCED BIODIGESTER MK-II TECHNOLOGY 166

MISCELLANEOUS 128-185

EUPHRANTA SIRUVANI' 167
SIRUVANI HILLS- A BUTTERFLY SUPER-HOTSPOT 167
VEDANTHANGAL BIRD SANCTUARY 167
NATIONAL ENERGY CONSERVATION AWARD 168
VEDIC PAINT OR PRAKRITIK' PAINT 168
INSECT APOCALYPSE 169
MANAGEMENT EFFECTIVENESS EVALUATION (MEE) 169
HOUBARA BUSTARD 170
ZSI STARTS TAGGING OLIVE RIDLEYS TO TRACK MIGRATION PATH 171
2020 ADAPTATION GAP REPORT 172
NAGI-NAKTI BIRD SANCTUARY 172
SAKSHAM CAMPAIGN 173
INDIAN STAR TORTOISES 173
PUNJAB'S HARIKE WETLAND 174
NITROGEN USE EFFICIENCY 174
'ARCTIC' POLICY 175
NEW ANT SPECIES 176
GREEN TAX 176
THE COALITION FOR DISASTER RESILIENT INFRASTRUCTURE (CDRI) 177
NATIONAL MARINE TURTLE ACTION PLAN 178
2021: YEAR OF INDO-FRENCH ALLIANCE TOWARDS A GREENER PLANET 178
SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING (SEEA) 178
NATIONAL FAECAL SLUDGE AND SEPTAGE MANAGEMENT (NFSSM) ALLIANCE 179
SEA VIGIL 2021 180
ASMI 181
INDIGENOUS TECHNOLOGY FOR SURVEILLANCE 181
DESERT KNIGHT-21 182
SMART ANTI AIRFIELD WEAPON 183
KAVACH AND AMPHEX-21 183
RISING 'SILENT CYBER RISKS' 184
IN FACT-81 184
ANKARA DECLARATION 184

MCQs 186-192

FOREIGN ARCHITECTS' CONTRIBUTION TO INDIA

GS-I CULTURE & HERITAGE

Context

- Indian Institute of Management (IIM), Ahmedabad has decided to bring down 18 dormitories built by legendary American architect Louis Kahn and replace them with new building.
- Kahn, is one among several foreign architects whose work defines several Indian cities.

Contribution of architects

Louis Kahn

- He conceived the IIMA campus in his distinctive style of architecture.
- It comprises of circles and arches, using red bricks that were locally available.
- Louis Kahn's majestic red-brick campus is an architectural masterpiece.
- Kahn is also known for his monolithic complexes of buildings including the Capitol Complex in Dhaka, Bangladesh and the recently restored Salk Institute in California.

Antonin Raymond & George Nakashima

Background

- Pondicherry city a French colony in South India was home to the reclusive philosopher Sri Aurobindo.
- He was joined by Mirra Alfassa, a French artist and spiritual seeker later known as "The Mother".
- Together they established the Sri Aurobindo Ashram in 1926.
- The Ashram served as a commune where people came from all over the world, drawn to the teachings of the prolific writer and spiritual guide - Sri Aurobindo.
- Mirra Alfasa envisioned "Golconde" as a home for members of the community, and contacted Tokyo-based Czech architect Antonin Raymond to design it.

The building

- Antonin Raymond designed Golconda as a universal commune.
- Japanese-American woodworker George Nakashima completed it after Raymond left India.
- Golconde is **India's first reinforced concrete buildings**, built between 1937 and 1945.
- Its ascetic interiors helped provide a meditative atmosphere for disciples.

Reinforced concrete is concrete in which steel is embedded in such a manner that the two materials act together in resisting forces. Plain concrete does not easily withstand tensile and shear stresses caused by wind, earthquakes, vibrations, and other forces. Therefore, plain concrete is unsuitable in most structural applications. In reinforced concrete, the tensile strength of steel and the compressive strength of concrete work together to allow the structure to sustain these stresses over considerable spans. The invention of reinforced concrete in the 19th century revolutionized the construction industry, and concrete became one of the world's most common building materials.

Otto Koenigsberger

- Koenigsberger from Berlin worked for the Maharaja of Mysore in the late 1930s.
- Later, he was commissioned by Tata & Sons to develop the industrial township of Jamshedpur in the early 1940s.
- He also designed the masterplan for Bhubhaneswar (1948) and Faridabad (1949).
- He planned for schools and bazaars in the city centre after seeing children and women walk punishing distances to reach schools and workplaces.
- At the time of Partition and communal riots his housing plans included people from different social classes and religions.

Frank Lloyd Wright

- American architect Frank Lloyd Wright never built a structure in India, but his influence was unfathomable.
- Two of his students, Gautam and Gira Sarabhai, were the founders of the National Institute of Design, Ahmedabad.
- Gira remodelled an existing bungalow using Wright's signature cantilever roofs and a strong indoor-outdoor connect.
- Padma Vibhushan Charles Correa, one of India's finest architects and urban planners, was hugely influenced by Wright.

A cantilever is a rigid structural element that extends horizontally and is supported at only one end. Cantilever construction allows overhanging structures without additional support.

Cantilever beam →

Le Corbusier

- Swiss-French painter-writer-architect Corbusier designed many of Chandigarh's civic buildings -- from courts to housing.
- Corbusier's modernist approach, without decoration, gave India its brutalist, bare concrete buildings.
- Many architects like B V Doshi and Shivnath Prasad, were inspired by him.
- Corbusier built the Sarabhai House, Shodhan House, Mill Owner's Association Building and Sankar Kendra.
- He is often called the **"father of modern Indian architecture".**

Buckminster Fuller

- Fuller is known for his geodesic domes – large-span structures made of a network of triangles.
- Gautam Sarabhai, inspired by Fuller, designed the Calico Dome in 1962.

Joseph Allen Stein

- He established the Department of Architecture and Planning at the West Bengal Engineering College.
- Stein gave Delhi many cultural landmarks that blended Indian craft with international modernism.
- It includes:
  - ✓ Triveni Kala Sangam
  - ✓ the High Commissioner's Residence and Chancery for Australia,
  - ✓ 'Steinabad' in Lodhi Estate, where many of his buildings stand, including the India International Centre, Ford Foundation and the India Habitat Centre.

LEGACY OF SUBHASH CHANDRA BOSE

GS-I MODERN HISTORY

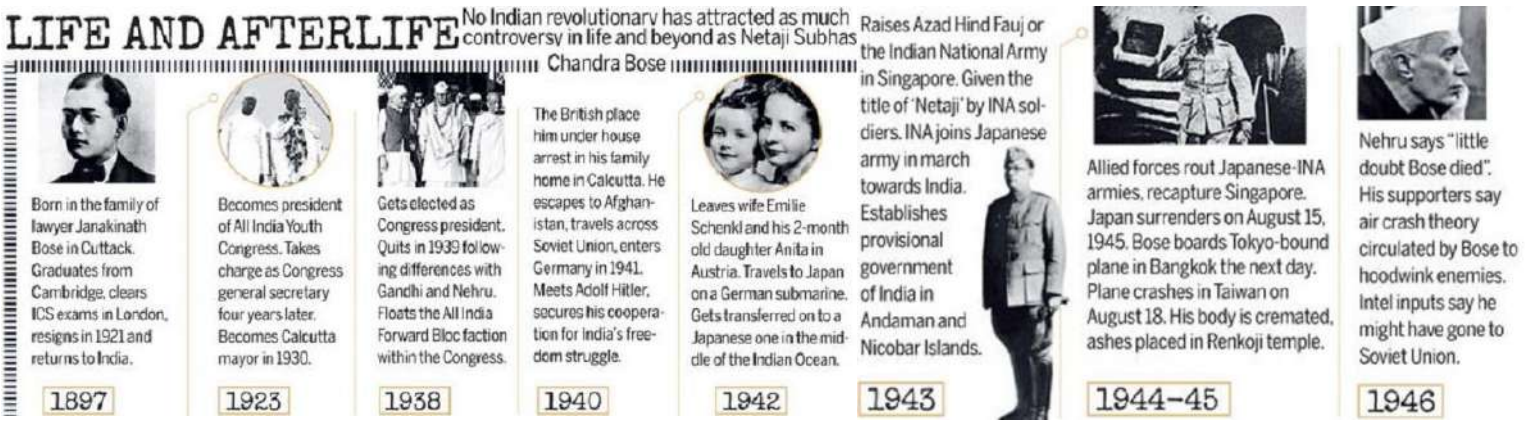
Context

- On 23rd January, the entire country paid tribute to Netaji Subhash Chandra Bose on his 123rd birth anniversary.

Parakram Divas

- Government of India had decided to celebrate the birthday of Netaji Subhash Chandra Bose, on 23rd January, as 'Parakram Diwas' every year.
- **Aim:**
  - ✓ to honour and remember Netaji's indomitable spirit and selfless service to the nation
  - ✓ to inspire people especially the youth, to act with fortitude in the face of adversity as Netaji did, and
  - ✓ to infuse in them a spirit of patriotic fervour.

Timeline


LIFE AND AFTERLIFE
No Indian revolutionary has attracted as much controversy in life and beyond as Netaji Subhas Chandra Bose
Born in the family of lawyer Janakinath Bose in Cuttack. Graduates from Cambridge, clears ICS exams in London, resigns in 1921 and returns to India.
1897
Becomes president of All India Youth Congress. Takes charge as Congress general secretary four years later. Becomes Calcutta mayor in 1930.
1923
Gets elected as Congress president. Quits in 1939 following differences with Gandhi and Nehru. Floats the All India Forward Bloc faction within the Congress.
1938
The British place him under house arrest in his family home in Calcutta. He escapes to Afghanistan, travels across Soviet Union, enters Germany in 1941. Meets Adolf Hitler, secures his cooperation for India's freedom struggle.
1940
Leaves wife Emilie Schenkl and his 2-month old daughter Anita in Austria. Travels to Japan on a German submarine. Gets transferred on to a Japanese one in the middle of the Indian Ocean.
1942
Raises Azad Hind Fauj or the Indian National Army in Singapore. Given the title of 'Netaji' by INA soldiers. INA joins Japanese army in march towards India. Establishes provisional government of India in Andaman and Nicobar Islands.
1943
Allied forces rout Japanese-INA armies, recapture Singapore. Japan surrenders on August 15, 1945. Bose boards Tokyo-bound plane in Bangkok the next day. Plane crashes in Taiwan on August 18. His body is cremated, ashes placed in Renkoji temple.
1944-45
Nehru says "little doubt Bose died". His supporters say air crash theory circulated by Bose to hoodwink enemies. Intel inputs say he might have gone to Soviet Union.
1946

Contribution: As a Social Reformer

Against Casteism

- The India National Army was a mixture of various Religions, Races, and Castes with total social equality of all soldiers.
- They were served food cooked in the common kitchen and shared space in common barracks breaking the age old caste bonds and practices.
- These were the first major successful steps in eradicating casteist feelings and nurturing feelings of "being Indian" above everything else among the soldiers.
- Any Indian irrespective of his caste (including non-martial caste) and religious community could enroll in the INA.

Secularism

- To strengthen the secular feelings and thereby foster National unity, common worship and celebrations of all religious festivals were introduced in the INA.
- Many Indians from the Minority Communities occupied high positions in the Provisional Government of Free India and the Azad Hind Fauj.

Impetus to "Unity in Diversity"

- Though Hindustani was widely used for military commands and administrative use, all other Indian languages were considered equally important.
- Also, the Azad Hind Radio Station, beamed to India in some Indian Languages like Bengali, Tamil, Telugu, Kannada, Malayalam, Gujarati, Marathi, Punjabi, Gurkhali and Pushtu apart from Hindustani and English.
- Azad Hind Radio Station had broadcast stations in Singapore, Bangkok, Rangoon, Tokyo and Saigon.

Champion of Women's Rights

- Netaji Subhas Chandra Bose had an inherent faith in "Nari Shakti" or "Women‟s Power".
- He strongly believed in the equality of men and women in Civil and Military life.
- His ideas on "women empowerment" were not mere lip service.
- Bose created a history by establishing the world's first all Women Regiment within the Indian National Army in 1943 and christened it "The Rani Jhansi Regiment."
- It was a full-fledged combat regiment with its Indian women soldiers receiving all necessary military training on par with their male counterparts.

Education

- Bose realized that education is a great force in bringing about a sense of national unity and solidarity.
- He was in favour of a common educational policy with a common script which should be 'Roman Script', the common lingua franca being Hindusthani.
- In regard to primary education, Bose was deeply influenced by the kindergarten system in Germany and Scandinavia and the Nursery School of England.

- He was in favour of visual or sensory method of education.
- Vivekananda's concepts of man - making and character - building elements in education influenced Bose so much that, he wanted men of character to free India from the foreign domination.
- Bose firmly believed that no educational plan would be successful without a comprehensive system of teachers' training.

Spiritualism

- His religious and spiritual propensity was further elevated in contact with the teachings of Ramkrishna Paramahansa and Vivekananda.
- He always had a small copy of Bhagavat Gita in the breast pocket of his field uniform.
- Subhas Chandra Bose accepted Upanishadic concept of 'Tyaga' and imbibed the ideal of renunciation for self-realization.
- He became determined to work ceaselessly for the benefit of the country and its toiling masses.

Political

Within Congress

- Bose stated his opinion that the INC "should be organized on the broadest anti-imperialist front with the two-fold objective of
- ✓ winning political freedom and
- ✓ the establishment of a socialist regime.
- He started the newspaper 'Swaraj'. In 1927, Bose became general secretary of the Congress party.
- Bose supported idea of comprehensive independence and with his support Jawahar Lal Nehru has passed resolution of Poorna Swaraj in 1929.
- He organized the All-Bengal Young Men's Conference.
- In 1938 he was elected president of the Indian National Congress (Haripura Session, Bengal) and formed a national planning committee.
- In 1939 he was re-elected in the Tripuri session of Congress.
- This win was against the expressed desire of Mahatma Gandhi who had his call on Pattabhai Sittaramayya.
- Although both shared the same dream of an "Independent India", Bose and Gandhiji were poles apart in their thought process and political approach of liberating India.

Forward Block

- In 1939 Bose resigned from Congress and established the All India Forward Bloc - as a faction within the India Congress. ."
- His aim was to liberate India from the colonial yokes.

Collaboration with foreign countries

- In 1943, Singapore, Subhash Chandra Bose reorganized and expanded the Indian National Army. This force was renamed as "Azad Hind Fauj."
- He also founded the Provisional Government of Free India at Singapore on 21st October 1943.
- The government was recognized by nine governments including Germany, Italy, Japan and Myanmar.
- The Provisional Government of Free India acquired its first territories when Japan handed over the Andaman and Nicobar Islands to it.
- In early 1944, three units of the Azad Hind Fauj (INA) took part in the attack on the north-eastern parts of India to oust the British from India.
- On the Indian mainland, an Indian Tricolour, was raised for the first time in the town of Moirang, in Manipur by the INA.
- Dilli Chalo ("On to Delhi)!" This was the call he used to give the INA armies to motivate them.
- In a nutshell, Bose worked tirelessly to secure German and Japanese support in freeing his beloved homeland from the foreign rule.

Ideology of Samyavada or Doctrine of Synthesis

- Netaji picked up the common good traits of National Socialism and Communism to "form the basis of the new synthesis."
- That synthesis is called as 'Samyavada' – an Indian word, which means literally 'the doctrine of synthesis or equality'.
- Samyavada points to a perfect balance between the material and the spiritual, between the East and the West.
- According to Bose, India's emphasis was not on civilization but on culture, not on the material side of life but on the intellectual and spiritual.
- Thus, we had our advantages as well as disadvantages.
- According to his Doctrine of Samyavada, the spiritual aspects, the intellectual, ethical and aesthetic values of life which had a high place in Indian culture must be blended with material civilization in the new set-up.
- The new India must be a synthesis of ancient glories and modern trends, of Indian achievements and foreign contributions.

Economic

- The National Planning Committee formulated by Bose in 1938 advocated for a policy of rapid and broad industrialization on modern lines.
- He wanted to adopt a comprehensive scheme for gradually socializing our entire agricultural and industrial system in the spheres of both production and distribution.
- He also spoke about abolition of landlordism and liquidation of agricultural indebtedness.
- According to him the appalling poverty, high incident of unemployment and low standard of living were due to the foreign domination.
- Bose classified industries into three categories, namely Large Scale or Heavy Industries, Medium-Scale and Cottage Industries.
- According to him, heavy industries are important for rapid economic development.
- Large-Scale Industries produce the means of production example: metals, heavy chemicals, machinery and tools, and communication industries like railways, telegraph, telephone and radio.
- Though he was very much in favor of large-scale industries he never lost sight of cottage and small industries in an underdeveloped country like India.
- In view of all this he desired economic reconstruction and industrialization on modern scientific and technological methods.
- For him economic freedom was the essence of social and political freedom.

Netaji and Indian Industrial Relations

- Netaji got associated with the Lahore Trade Union Congress in 1922.
- He was elected President of All India Trade Union Congress (AITUC) in 1931 there by emerging as the most important Trade Union Leader of British India.
- Bose was closely associated with trade union movement in Calcutta, Bombay, Nagpur, Jamshedpur and Bokaro.
- He was instrumental in the Indianization of the TATA Group preferring Indian workers and higher officials in all its plants.
- His letter to Chairman of TATA paved the way for the appointment of more Indians in key positions in that Company.
- Netaji's relentless fight led to the enactment of Indian Trade Unions Act, 1926.
- He strongly advocated the "Tri-Partite Scheme" of Industrial Relations where in the Government should play a major role in every sphere of Industrial Relations.
- He considered that State has the duty of providing employment to citizens or take up the responsibility of maintaining the unemployed citizens.
- He emphasized the need for Social Security and Labour Welfare Programmes.
- He was among the first leaders to strongly advocate equality of wages for both men and women in all type of work.

- Netaji Subhas Chandra Bose proudly proclaimed "Free India will not be a land of capitalists, landlords, and Castes".
- He wrote in his August 1942 Article, "India will be able to concentrate her whole attention on the solution of social problems. The most important social problem is that of poverty and unemployment".

The relationship between Gandhiji and Subhash Chandra Bose

- Mahatma Gandhi and Subhas Chandra Bose were two legendary personalities, gigantic in their political moral and ethical stature. Both of them were two worthy sons of Mother India.
- To Subhash Bose, Gandhi always remained 'India's greatest man'.
- Subhash had all praise for Gandhi's unflinching patriotism, firmness in character, love for truth etc.
- He recognized and admitted Gandhi as the undisputable, unrivalled leader of the masses.
- Similarly, to Gandhi, Bose was like a son whose 'self sacrifice and suffering, drive, integrity and commitment to the national cause and the capacity to bind all Indians into one people were unsurpassed.'
- Both Gandhi and Bose were totally honest men. They were internationalists and humanists. They were secular in approach and anti-racial in outlook.
- Their minds were always diverted towards the liberation of their motherland.
- The whole life of both the leaders was an epic struggle for India's independence.

Their differences

- Inspite of their patriotic fervor, there were glaring differences between Gandhi and Subhash.
- In political life both were posed against each other.
- Young Netaji was a firebrand nationalist who believed in the tradition of Tilak and Aurobindo.
- Bose adopted violent means for liberation of India and thus led Indian National Army.
- Gandhiji, on the contrary, was a reluctant nationalist who belonged to the tradition of his mentor Gokhale and Tagore. He was a firm believer of non-violence and led peaceful mass protests.
- Gandhi subscribed Trusteeship pattern of relation between Capitalist and labourers.
- Subhash Chandra was a keen follower of radical leftist and rationalist ideology and organized trade unions.
- Bose wanted to seize the opportunity provided by Second World War to oust the Britishers and liberate India. Thus, he approached Germany, Japan to seek support for India's cause.
- Gandhi saw fascism and Nazism a greater danger to Indian polity and society thus co-operated with British. Thus they had a different understanding of same event.
- Gandhi's idea of freedom was based on self rule and rule over self. Bose viewed freedom not only in terms of political self rule but also freedom from socio-economic inequalities, casteism, intolerance etc.
- Bose's strong revolutionary urge for the emancipation of his motherland made him critical of many of Gandhiji's techniques.

Conclusion

- Despite their differences both Gandhiji and Bose were infallibly dedicated to the cause of India's liberation from the foreign yolks.
- Both had great respect for each other. In 1942 Gandhi called Subhash Chandra Bose the "Prince among the Patriots" and one whose "patriotism was second to none."
- Bose too admired Gandhiji and in a radio broadcast from Rangoon in 1944, he called Gandhiji "The Father of Our Nation."

"Give me blood and I will give you freedom!"

"One individual may die for an idea, but that idea will, after his death, incarnate itself in a thousand lives."

BASAVANNA

GS-I MEDIEVAL HISTORY

Context

- Karnataka Chief Minister recently laid the foundation stone for the 'New Anubhava Mantapa' in Basavakalyan.
- It is the place where 12th century poet-philosopher Basaveshwara lived for most of his life.

About Basavanna

- Basavanna was an Indian 12th-century statesman, philosopher, poet, in the Bhakti movement.
- He was also a Hindu Shaivite social reformer during the reign of the Kalyani Chalukya/Kalachuri dynasty.
- His influence reached its peak during the rule of King Bijjala II in Karnataka.

Contributions

- He was the **founder of Lingayat sect.**

Lingayatism is a **Shaivite Hindu religious** tradition in India. Initially they were known as **Veerashaivas**. Since the 18th century, adherents of this faith are known as Lingayats. Lingayatism emphasizes on **qualified monism**. It **rejects any form of social discrimination including the caste system**. Lingayat scholars thrived in northern Karnataka during the **Vijayanagara Empire (14th-18th century**). In the 21st century, some Lingayats have sought legal recognition as a religion distinct from Hinduism and Veerashaivas.

Basava(also known as **Bhakti Bhandari Basavanna** or **Basaveshwara** , (1134–1196) was a philosopher, Statesman and a social reformer from present-day Karnataka, India. Basava fought against the inhuman practice of caste system, which discriminated people based on their birth, and certain rituals in Hinduism. He spread social awareness through his poetry, popularly known as Vachanaas. Basavanna used Ishtalinga to eradicate untouchability, establish equality among all human beings and a means to attain spiritual enlightenment. These are rational and progressive social thoughts coupled with established perception of God in Hindu society.

- Basavanna was a social reformer during the reign of the **Kalyani Chalukya/Kalachuri dynasty**.
- He-
  - ✓ **Rejected temple worship,** superstitions and rituals led by Brahmins.
  - ✓ Advocated **equality of all human beings** irrespective of caste.
  - ✓ launched a devotional movement called **Virashaivas. It means "ardent, heroic worshippers of Shiva**". Roots of this movement could be traced to **Tamil Bhakti movement**, particularly the **Shaiva Nayanars traditions of** 7th- to 11th-century.
  - ✓ promoted personalized devotional worship of Shiva through symbols like **ishtalinga**. Anyone could worship God irrespective of gender, class or caste discrimination.
  - ✓ used his poetry **–Vachanaas** to spread social awareness.
  - ✓ Established **Anubhava Mantapa**- a hall for gathering and discussion of spiritual ideas by any member of the society from **both genders**.

Literary works

- The **Basavarajadevara Ragale** by the Kannada poet **Harihara (c.1180)** is the earliest available account on the life of Basavanna.
- The **Basava Purana**, written by **Palkuriki Somanatha** in 13th-century is a sacred text in Lingayatism.

B. R. AMBEDKAR

GS-I MODERN HISTORY

Context

- Recently, the Government has decided to develop five places as "Panchteerth" in honour of B R Ambedkar.

Dr. BR Ambedkar & his contributions

- He was independent India's first Minister of Law and Justice.

- He was also the **chief architect of the Constitution of India.**
- He campaigned against social discrimination towards the untouchables (Dalits).
- He **established the Bahishkrit Hitakarini Sabha** to promote education and socio-economic improvement of the untouchables.
- He also **founded the Independent Labor Party** (1936) and **Scheduled Castes Federation** (1942).
- He **led the Mahad Satyagrah** or Chavdar Tale Satyagraha to fight for the right of the untouchable community to draw water from the main water tank of the town.
- He was invited to testify before the Southborough Committee, which was preparing the Government of India Act 1919.
- At the hearing, Ambedkar **argued for creating separate electorates** and reservations for untouchables
- In 1930, Ambedkar **launched Kalaram Temple movement.**
- In 1932 he signed Poona pact.

Poona Pact was signed by Ambedkar on behalf of the depressed classes and **Madan Mohan Malviya** on behalf of the Upper Caste Hindus as a means to end the fast of Gandhi. Gandhi was undertaking the fast in jail as a protest against British Prime Minister **Ramsay MacDonald's decision** to give Separate electorates to depressed classes for the election.

- He was appointed as the Chairman of the Constitution Drafting Committee.
- He resigned from cabinet in 1951, when parliament stalled his draft of the Hindu Code Bill.
- The bill sought to enshrine gender equality in the laws of inheritance and marriage.

Books and Journals

- ✓ Annihilation of Caste,
- ✓ Buddha Or Karl Marx,
- ✓ Buddha and His Dhamma,
- ✓ Who were the Shudras,
- ✓ The Rise and Fall of Hindu Women among others.
- ✓ Mooknayak,
- ✓ Bahishkrit Bharat,
- ✓ Samatha,
- ✓ Equality Janata among others.

Relevance of Ambedkar in Present Times

- 70 years has passed since Independence but the state machinery is inherently inept and it is being manipulated by caste and class biases.
- Caste system against which Ambedkar fought throughout his life is still a contested terrain.
- Dalits continue to bear the brunt of violence and discrimination.
- Today politics is all about caste, race, religion, polarization and mudslinging. Ideology has taken a back seat in political discourses.
- Caste survives despite globalization, scientific development and mass political mobilization of the Dalits.
- Constitutionally guaranteed reservation for education and employment has no doubt made a mark.
- But the social and economic justice that is due to the Dalits and tribal is still elusive.
- The narrative of the development of SCs and STs is blemished by recurring instances of rape, corruption, exploitation, exclusion, denial of justice, displacement and deprivation.

The State shall promote with special care the educational and economic interests of the weaker section of the people, and in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation."
-Article 46 of the Indian Constitution.

Key issues

Dalit women

- A significant proportion of India's Dalit women face verbal abuse, physical assault, sexual harassment and assault, domestic violence and rape.

Bonded labor

- The use and abuse of Dalit bonded laborers remains endemic within a range of occupations. Children are particularly vulnerable.

Forced prostitution

- Young Dalit girls suffer systematic sexual abuse in temples, serving as prostitutes for men from dominant castes.

Manual scavenging

- An estimated 1.3 million Dalits in India make their living through the vile, inhuman and outlawed practice of manual scavenging.

Political participation

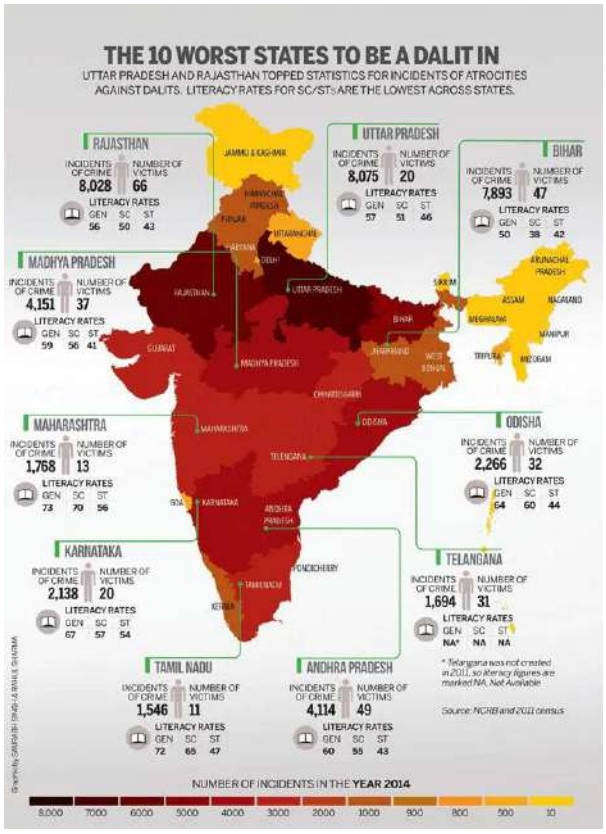
- Dalits are often limited from equal and meaningful political participation.

Non-implementation of legislation

- Legal mechanisms to protect Dalits are in place, but their implementation remains very weak. Consequently, atrocities against Dalits are almost inevitably committed with impunity.

Some statistics

- According to a 2010 report by the National Human Rights Commission (NHRC) on the Prevention of Atrocities against Scheduled Castes, a crime is committed against a Dalit every 18 minutes.
- Every day, on average, three Dalit women are raped, two Dalits murdered, and two Dalit houses burnt.
- According to the NHRC statistics put together by K.B. Saxena,
  - ✓ 37 per cent Dalits live below the poverty line,
  - ✓ 54 per cent are undernourished,
  - ✓ 83 per 1,000 children born in a Dalit household die before their first birthday,
  - ✓ 12 per cent before their fifth birthday, and
  - ✓ 45 per cent remain illiterate.
- The data also shows that Dalits are prevented from entering the police station in 28 per cent of Indian villages.
- Dalit children have been made to sit separately while eating in 39 per cent government schools.
- Dalits do not get mail delivered to their homes in 24 per cent of villages.
- And they are denied access to water sources in 48 per cent of our villages because untouchability remains a stark reality even though it was abolished in 1955.
- A crime is committed against a Dalit every 16 minutes and on an average 1,500 Dalit women are raped every year.
- The tragic suicide of Rohith Vemula, a Ph.D Dalit student in the Hyderabad Central University who hanged himself is a testimony to our failure.
- Blaming his birth as a "fatal accident" in a chilling final note he said -we could not be any further away from what the Constitution had demanded from a free and fair India.
- Even today, more than 90% of the employees in the sanitation and cleaning sector are Dalits.
- In villages and urban slums, segregation is rampant to this day. A stark example of this is Sunpedh in Ballabhgarh, Haryana, barely 40 kilometres from Delhi. Untouchability is practised widely in Sunpedh.


THE 10 WORST STATES TO BE A DALIT IN
UTTAR PRADESH AND RAJASTHAN TOPPED STATISTICS FOR INCIDENTS OF ATROCITIES AGAINST DALITS. LITERACY RATES FOR SC/STs ARE THE LOWEST ACROSS STATES.
RAJASTHAN
INCIDENTS OF CRIME 8,028
NUMBER OF VICTIMS 66
LITERACY RATES GEN 56 SC 50 ST 43
UTTAR PRADESH
INCIDENTS OF CRIME 8,075
NUMBER OF VICTIMS 20
LITERACY RATES GEN 57 SC 51 ST 46
BIHAR
INCIDENTS OF CRIME 7,893
NUMBER OF VICTIMS 47
LITERACY RATES GEN 50 SC 38 ST 42
MADHYA PRADESH
INCIDENTS OF CRIME 4,151
NUMBER OF VICTIMS 37
LITERACY RATES GEN 59 SC 56 ST 41
MAHARASHTRA
INCIDENTS OF CRIME 1,768
NUMBER OF VICTIMS 13
LITERACY RATES GEN 73 SC 70 ST 56
ODISHA
INCIDENTS OF CRIME 2,266
NUMBER OF VICTIMS 32
LITERACY RATES GEN 64 SC 60 ST 44
KARNATAKA
INCIDENTS OF CRIME 2,138
NUMBER OF VICTIMS 20
LITERACY RATES GEN 67 SC 57 ST 54
TELANGANA
INCIDENTS OF CRIME 1,694
NUMBER OF VICTIMS 31
LITERACY RATES GEN NA* SC NA ST NA
TAMIL NADU
INCIDENTS OF CRIME 1,546
NUMBER OF VICTIMS 11
LITERACY RATES GEN 72 SC 65 ST 47
ANDHRA PRADESH
INCIDENTS OF CRIME 4,114
NUMBER OF VICTIMS 49
LITERACY RATES GEN 60 SC 55 ST 43
* Telangana was not created in 2011, so literacy figures are marked NA. Not Available
Source: NCRB and 2011 census
NUMBER OF INCIDENTS IN THE YEAR 2014
8,000 7000 6000 5000 4000 3000 2000 1000 900 800 500 10

THE BIG SOLUTIONS
How to end untouchability and caste-based discrimination
1 BANISH UNTOUCHABILITY IN EDUCATIONAL INSTITUTIONS
The government must proactively ensure a discrimination-free educational atmosphere.
2 LAND FOR ALL RURAL DALIT FAMILIES
State governments should begin implementing the pledge of land reforms and provide pattas of land to all landless Dalits and additionally prevent any grabbing of Dalit-owned land by land mafia.
3 PROVIDE VIABLE ASSETS IN CITIES
Since most Dalits in urban areas are casual labourers in unorganised sectors, they should be made owners of viable assets they work on, like rickshaws.
4 ENSURE FOOD SECURITY
Include all Dalit families in the Antyodaya Anna Yojana/Priority households in the National Food Security Act, 2013. Food security must be doggedly pursued during droughts and floods.
5 IMPLEMENT THE SUKHDEO THORAT COMMITTEE REPORT
Constitutionally guaranteed safeguards should be adhered to in order to prevent hostility against 'students of reserved category'.
6 REHABILITATE MANUAL SCAVENGERS
Prohibition of Employment as Manual Scavengers and their Rehabilitation Act 2013 has not been enough. They must be given training in non-sanitary work.

Way ahead

- India's Dalit community should not look forward to the reincarnation of Ambedkar.
- Rather, **each member of it must transform himself/herself to an Ambedkar** so as to put an end to the evils of the existing caste system. Untouchability must go in entirety.
- Mere political representation and a reservation system used by few Dalits would neither uplift the whole community.
- Ambedkar's essence lies in heralding a systemic change, instead of craving for political freedom.
- To bring this in and practice his philosophy in true sense, we need **massive socio-political awareness.**
- Also, **economic strength of the Dalit community** must be enhanced.
- Instead of arguing for radical change in the Indian social system, a "piecemeal engineering" can be much better in finding a way to achieve "social engineering" for the Dalits in the days to come.
- The annihilation of the caste may take longer, but nimble steps towards the same can start from right now.

HARVEST FESTIVALS OF INDIA

GS-I CULTURE & HERITAGE

Context

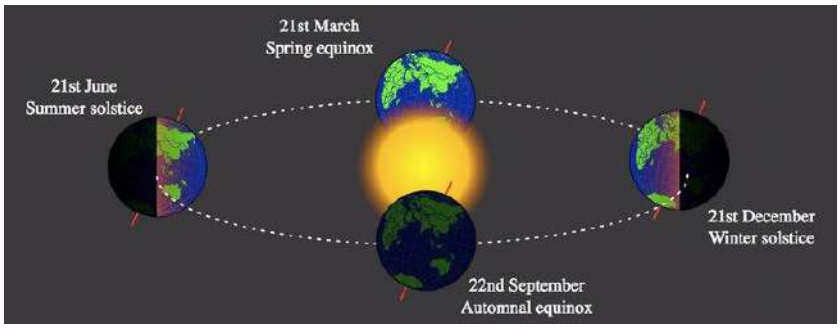
- Makar Sankranti is a major harvest festival celebrated in India and is dedicated to the Sun God, Surya.
- This year the festival will be celebrated on January 14.

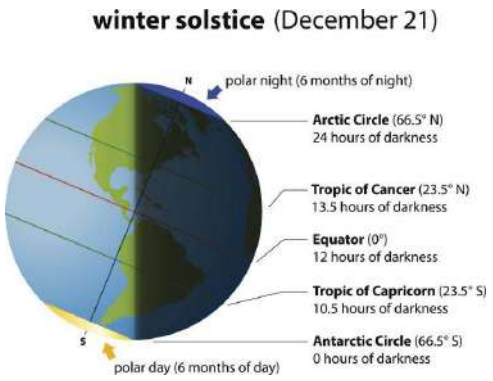
About Makar Sankranti

- Makar Sankranti or Uttarayan or Maghi, is a festival day in the Hindu calendar, dedicated to the deity Surya (sun).
- It marks the first day of the sun's transit when winter solstice ends ad there is a start of longer days.

Winter solstice, also called hibernal solstice, are the two moments during the year when the path of the Sun in the sky is farthest south in the Northern Hemisphere (December 21 or 22) and farthest north in the Southern Hemisphere (June 20 or 21). At the winter solstice the Sun travels the shortest path through the sky, and that day therefore has the least daylight and the longest night.

When the winter solstice happens in the Northern Hemisphere, the North Pole is tilted about 23.4° away from the Sun. Because the Sun's rays are shifted southward from the Equator by the same amount, the vertical noon rays are directly overhead at the Tropic of Capricorn (23°27′ S). Six months later the South Pole is inclined about 23.4° away from the Sun. On this day of the winter solstice in the Southern Hemisphere, the Sun's vertical overhead rays progress to their northernmost position, the Tropic of Cancer (23°27′ N).





Winter Harvest Festivals of India

BATTLE OF BHIMA-KOREGAON

GS-I MODERN HISTORY

Context

- The 1818 battle of Bhima-Koregaon, should be included in the history textbooks, said Union Minister of State for Social Justice and Empowerment.

Battle of Koregaon

- The Battle of Koregaon was fought on 1st January 1818 between the British East India Company and the Peshwa faction of the Maratha Confederacy, at Koregaon Bhima (present day Maharashtra)
- It is also called the Battle of Koregaon Bhima, after the river Bhima that flows close to it.
- The battle was part of the **Third Anglo Maratha war** - a series of battles that culminated in the defeat of the Maratha Empire. It led to the subsequent rule of the British East India Company.

Note- The Company troops of Indian origin included Mahars, Marathas, Rajputs, Muslims and Jews.

Significance of the Battle

- The Mahars were considered as untouchable in the contemporary caste-based society.
- The Peshwas, who were high-caste Brahmins, were notorious for their mistreatment and persecution of the untouchables.
- This battle has thus attained legendary stature in Dalit history.
- The Dalits who follow BR Ambedkar view this battle as a victory of Mahars over the injustice and torture meted out to them by the Brahminical Peshwas.

Mahars and the Victory Pillar

- The Koregaon pillar inscription features the names of Company soldiers killed in the battle. 22 of these soldiers were Mahars.
- The pillar was erected by the East India Company in memory of those who fought the battle.
- While the obelisk was built by the British as a symbol of their own power, today it serves as a memorial of the Mahars.
- Ever since Bhima-Koregaon Ranstambh Seva Sangh (BKRSS) was formed, they regard the stambh or pillar as a site of their velour and a symbol of their place in the political diaspora.
- B. R. Ambedkar visited the site on 1st January 1927. To commemorate his visit to the site, today thousands of his followers visit the site.

YAKSHAGANA

GS-I CULTURE & HERITAGE

Context

- Recently an Yakshagana artist died while performing on the stage

About Yakshagana

- Yakshagana is a traditional Indian theatre form, developed in the state of **Karnataka and Kerala.**
- It combines dance, music, dialogue, costume, make-up, and stage techniques with a unique style and form.
- It is believed to have **evolved during the period of the Bhakti movement.**
- Yakshagana is strongly **influenced by the Vaishnava Bhakti movement.**
- Its stories are **drawn from Ramayana, Mahabharata, Bhagavata** and other epics from both Hindu and Jain.

- Yakshagana is usually recited in Kannada. But it is also performed in Malayalam as well as Tulu (the dialect of south Karnataka).
- It is performed with percussion instruments like chenda, maddalam, jagatta or chengila (cymbals) and chakratala or elathalam (small cymbals).

Literature

- Early Yakshagana poets included Ajapura Vishnu, Purandaradasa, Parthi Subba, and Nagire Subba.
- King Kanteerava Narasaraja Wodeyar II (1704–1714) authored 14 Yakshaganas in various languages in the Kannada script.
- Mummadi Krishnaraja Wodeyar (1794–1868) also wrote several Yakshagana prasanga, including ***Sougandhika Parinaya.***
- Noted poet, Muddana, composed several Yakshagana prasanga's, including the very popular ***Rathnavathi Kalyana.***

- Tala-Maddale is an ancient form of debate performance in Karnataka and Kerala.
- It is a derived form of Yakshagana—a classical dance or musical form of art from the same region.
- Unlike the Yakshagana performance, in the conventional 'talamaddale,' the artists sit across in a place without any costumes and engage in testing their oratory skills based on the episode chosen.
- Music is common for both Yakshagana performance and 'talamaddale'. But Talamaddale has only spoken word without any dance or costumes.
- Yakshagana on the other hand is a traditional Indian theatre form, developed in Karnataka and Kerala that combines dance, music, dialogue, costume, make-up, and stage techniques with a unique style and form.
- It is believed to have evolved from pre-classical music and theatre during the period of the Bhakti movement.
- Its stories are drawn from Ramayana, Mahabharata and other epics from both Hindu, Jain and other ancient Indian traditions.

Theatre Forms of India

Bhand Pather

- Bhand Pather, the traditional theatre form of Kashmir, is a unique combination of dance, music and acting.
- Satire, wit and parody are preferred for inducing laughter.
- In this theatre form, music is provided with surnai, nagaara and dhol.
- Since the actors of Bhand Pather are mainly from the farming community, the impact of their way of living, ideals and sensitivity is discernible.

Swang

- Originally the theatre form Swang, was mainly music-based.
- Gradually, prose too, played its role in the dialogues.
- The softness of emotions, accomplishment of rasa along with the development of character can be seen in this theatre form.
- The two important styles of Swang are from Rohtak and Haathras.
- In the style belonging to Rohtak, the language used is Haryanvi (Bangru) and in Haathras, it is Brajbhasha.

Nautanki

- Nautanki is usually associated with Uttar Pradesh.
- The most popular centres of this traditional theatre form are Kanpur, Lucknow and Haathras.
- The meters used in the verses are: Doha, Chaubola, Chhappai, Behar-e-tabeel.
- Nowadays, both men and women take part in the performances.
- Among those remembered with reverence is Gulab Bai of Kanpur. She gave a new dimension to this old theatre form.

Raasleela

- Raasleela is based exclusively on Lord Krishna legends; it is believed that Nand Das wrote the initial plays based on the life of Krishna.
- In this theatre form the dialogues in prose combined beautifully with songs and scenes from Krishna's pranks.

Bhavai

- Bhavai is the traditional theatre form of Gujarat.
- The centers of this form are Kutch and Kathiawar.
- The instruments used in Bhavai are: bhungal, tabla, flute, pakhaawaj, rabaab, sarangi, manjeera, etc.
- In Bhavai, there is a rare synthesis of devotional and romantic sentiments.

Jatra

- Fairs in honour of gods, or religious rituals and ceremonies have within their framework musical plays are known as Jatra.
- This form was born and nurtured in Bengal.
- Krishna Jatra became popular due to Chaitanya's influence.
- Later, however, worldly love stories too, found a place in Jatra.
- The earlier form of Jatra has been musical. Dialogues were added at later stage.
- The actors themselves describe the change of scene, the place of action, etc.

Maach

- Maach is the traditional theatre form of Madhya Pradesh.
- The term Maach is used for the stage itself as also for the play.
- In this theatre form songs are given prominence in between the dialogues.
- The term for dialogue in this form is bol and rhyme in narration is termed vanag.
- The tunes of this theatre form are known as **rangat.**

Bhaona

- Bhaona is a presentation of the Ankia Naat of Assam.
- In Bhaona cultural glimpses of Assam, Bengal Orissa, Mathura and Brindavan can be seen.
- The Sutradhaar, or narrator begins the story, first in Sanskrit and then in either Brajboli or Assamese.

Tamaasha

- Tamaasha is a traditional folk theatre form of Maharashtra.
- It has evolved from the folk forms such as Gondhal, Jagran and Kirtan.
- Unlike other theatre forms, in Tamaasha the female actress is the chief exponent of dance movements in the play.
- She is known as Murki. Classical music, footwork at lightning-speed, and vivid gestures make it possible to portray all the emotions through dance.

Dashavatar

- Dashavatar is the most developed theatre form of the Konkan and Goa regions.
- The performers personify the ten incarnations of Lord Vishnu-the god of preservation and creativity.
- The ten incarnations are Matsya (fish), Kurma (tortoise), Varaha (boar), Narsimha (lion-man), Vaman (dwarf), Parashuram, Rama, Krishna (or Balram), Buddha and Kalki.
- Apart from stylized make-up, the Dashavatar performers wear masks of wood and papier mache.

Krishnattam

- Krishnattam, folk theatre of Kerala, came into existence in the middle of 17th century A.D. under the patronage of King Manavada of Calicut.
- Krishnattam is a cycle of eight plays performed for eight consecutive days.
- The plays are Avataram, Kaliamandana, Rasa krida, kamasavadha, Swayamvaram, Bana Yudham, Vivida Vadham, and Swargarohana.
- The episodes are based on the theme of Lord Krishna - his birth, childhood pranks and various deeds depicting victory of good over evil.

Mudiyettu

- Mudiyettu, traditional folk theatre form of Kerala is celebrated in the month of Vrischikam (November-December).

- It is usually performed only in the Kali temples of Kerala, as an oblation to the Goddess.
- It depicts the triumph of goddess Bhadrakali over the asura Darika.
- The seven characters in Mudiyettu-Shiva, Narada, Darika, Danavendra, Bhadrakali, Kooli and Koimbidar (Nandikeshvara) are all heavily made-up.

Koodiyaattam

- Koodiyaattam, one of the oldest traditional theatre forms of Kerala, is based on Sanskrit theatre traditions.
- The characters of this theatre form are: Chakyaar or actor, Naambiyaar, the instrumentalists and Naangyaar, those taking on women's roles.
- The Sutradhar or narrator and the Vidushak or jesters are the protagonists.
- It is the Vidushak alone who delivers the dialogues. Emphasis on hand gestures and eye movements makes this dance and theatre form unique.

Therukoothu

- Therukoothu, the most popular form of folk drama of Tamil Nadu, literally means "street play".
- It is mostly performed at the time of annual temple festivals of Mariamman (Rain goddess) to achieve rich harvest.
- At the core of the extensive repertoire of Therukoothu there is a cycle of eight plays based on the life of Draupadi.
- Kattiakaran, the Sutradhara of the Therukoothu performance, gives the gist of the play to the audience and Komali entertains the audience with his buffoonery.

THIRUVALLUVAR

GS-I CULTURE & HERITAGE

Context

- Recently, Tamil Nadu celebrated Thiruvalluvar Day.

About Thiruvalluvar

- Thiruvalluvar, was a celebrated Tamil poet and philosopher.
- The exact date and religious identity of Thiruvalluvar is debated.
- Some place him in the 4th century BCE to early 6th century CE, based on the analysis of his writings.
- He is best known as the author of **Thirukkuṛaḷ** which contains 1330 couplets (kurals).
- It is a collection of couplets on ethics, political and economical matters, and love. He contributed to **Sangam Literature**.
- He is generally thought to have belonged to either Jainism or Hinduism.
- However, almost every religious group in India, including Christianity, has claimed Thirukkural and Thiruvalluvar as one of their own.
- Dravidians count him as a saint, as he rejected the caste system.
- The famous **Thiruvalluvar Statue of Kanyakumari**, is a 133-feet tall stone sculpture of the poet located atop a small island on the southernmost point of the Indian peninsula on the Coromandel Coast.
- At this point two seas (the Bay of Bengal and the Arabian Sea) and an ocean (the Indian Ocean) meet. It is currently the 25th tallest statue in India.

GURU GOBIND SINGH

GS-I MODERN HISTORY

Context

- Recently, the 353rd birth anniversary of Guru Gobind Singh was celebrated.

About Guru Gobind Singh

- He was the **10th Sikh Guru.**
- **Founded** Sikh Warrior community called **Khalsa** in 1699.
- Named Guru Granth Sahib and declared it as the holy scripture of Sikhism.
- Introduced five Ks in Sikhism, called the **"Panj Kakar".** They are - uncut hair (Kesh), an iron bracelet (kara), a wooden comb (Kangha), cotton undergarment (Kachera) and iron dagger (Kirpan).
- Introduced turban to cover hair.
- Established the highest order in the Sikh community.
- Fought against the Mughals in **Battle of Muktsar** in 1705.
- **Dasam Granth** is dedicated to Guru Gobind Singh.

Guru Nanak (1469 to 1539)	• **Founder of Sikhism.** • **Contemporary of Mughal emperor Babur.** • **Introduced the concept of one God.** • **Started the institution of "Langar"-- common kitchen where food is served to everyone without any discrimination.** • **Emphasized the equality of women** • **Rejected the path of renunciation** • **rejected the authority of the Vedas**
Guru Angad (1539 to 1552)	• Invented and introduced the Gurmukhi script . • Visited by Humayun. • Popularized and expanded the institution of "Langar"
Guru Amardas (1552 to 1574)	• Institutionalised the Sikh faith. • Picked the site for the Golden Temple, Amritsar. • Contemporary of Mughal emperor - Akbar. • Introduced the Anand Karaj marriage ceremony for the Sikhs, replacing the Hindu form. • Established Manji & Piri system of religious missions for men and women respectively. • Abolished Sati and purdah system among the Sikhs.
Guru Ram Das (1574 to 1581)	• Founded the city of Amritsar • Started the construction of Golden Temple at Amritsar.
Guru Arjan Dev (1581 to 1606)	• Compiled the Adi Granth. • completed construction of Sri Darbar Sahib/Golden Temple • Executed by Jahangir.
Guru Hargobind (1606 to 1644)	• Introduced the Akal Takht (seat of power). • First Guru to take up arms to defend the faith. • Waged wars against Jahangir and Shahjahan
Guru Har Rai Sahib (1644 to 1661)	• Supported Dara Shikoh (son of Shah Jahan) against Aurangzeb.
Guru Har Kishan (1661 to 1664)	• Contemporary of Aurangazeb • Was the Guru from age 5 till his death before reaching 8 years.
Guru Tegh Bahadur (1665 to 1675)	• Was publicly beheaded by Aurangzeb for refusing to convert to Islam in 1675.
Guru Gobind Singh (1675 to 1708)	• Established the Khalsa in 1699 • Organized the Sikhs into a martial sect.

VEER SAVARKAR

Context

- An MLC in Uttar Pradesh has demanded that the portrait of Hindu Mahasabha leader Vinayak Damodar Savarkar be removed from the picture gallery of the State Legislative Council.
- This has stirred controversy in the state.

About Veer Savarkar

Nationalism

- Along with his brother Ganesh Damodar Savarkar, he founded the **Abhinav Bharat Society.**
  - ✓ Initially founded as "Mitra Mela", **Abhinav Bharat Society comprised of hundreds of revolutionaries and political activists.**
- He was associated with **Swadeshi Movement**. He was against foreign goods and propagated the idea of Swadeshi. He burnt all the foreign goods in a bonfire during Swadeshi Movement.
- Later, he joined Bal Gangadhar Tilak's **Swaraj Party.**
- In 1906, he went to the United Kingdom, where he involved himself with organizations such as **India House and the Free India Society.**
- He advocated complete Indian independence by revolutionary means.

Social Reform

- He worked on abolishment of untouchability in Ratnagiri.
- **Dr Babasaheb Ambedkar also compared his work to Lord Buddha.**

Political Party

- He formed the **Hindu Mahasabha** political party & served as its President.

Opposition to Quit India Movement

- Under Savarkar, the Hindu Mahasabha openly opposed the call for the Quit India Movement and boycotted it officially.

Alliance with Muslim League and others

- The Indian National Congress won a massive victory in the 1937 Indian provincial elections, decimating the Muslim League and the Hindu Mahasabha.
- However, in 1939, the Congress ministries resigned in protest. Reason - Viceroy Lord Linlithgow's declared India to be a belligerent in the Second World War without consulting the Indian people.
- This led to the **Hindu Mahasabha, under Savarkar's presidency, joining hands with the Muslim League** and other parties to form government.
- Such coalition governments were formed in **Sindh, NWFP, and Bengal**.

Two-nation Theory

- He founded the two-nation theory in his book **'Hindutva'** calling Hindus and Muslims two separate nations. In 1937, **Hindu Mahasabha passed it as a resolution.**

Literary Works

- He was the first to call the **Indian Rebellion of 1857** as the **First War of Independence**. He authored the book **'The History of the War of Indian Independence'.**
- While the book was banned by Britishers, **Madama Bhikaji Cama** published it in Netherlands, Germany and France, which eventually reached many Indian revolutionaries.
- Other Books : **'Hindutva: who is hindu?'; Moplah Rebellion and the Transportation etc**

India House was a student residence that existed between 1905 and 1910 in North London. With the patronage of lawyer **Shyamji Krishna Varma**, it was opened to promote nationalist views among Indian students in Britain. It granted scholarships to Indian youths for higher studies in England. The building rapidly became a hub for political activism, one of the most prominent for overseas revolutionary Indian nationalism.

The **Free India Society** was a political organization of Indian students in England, committed to obtaining the independence of India from British rule. Initially an intellectual group, it became a revolutionary outfit under its founding leader, **Madam Bhikaji Cama.**

SREE NARAYANA GURUDEV

GS-I MODERN HISTORY

Context

- Vice President of India did the virtual book launch of "Not Many, But One", an English translation of poems of Sree Narayana Gurudev.

Sree Narayan Guru

- Narayana Guru was a philosopher, spiritual leader and social reformer in India.
- He was born into a family that belonged to the Ezhava caste.

Legacy

Social Reform

- Casteism was practised in Kerala during the 19th and early 20th centuries.
- The so called lower caste people such as Ezhavas and the untouchable castes like Paraiyars, tribals and Pulayars had to suffer discrimination from the upper caste community.
- Sri Narayana Guru was at the forefront of the temple entry movement and against the social discrimination of untouchables.
- He launched the Aravipuram Movement in 1888.
- He defied the religious restrictions traditionally placed on the Ezhava community, and consecrated an idol of Shiva at Aravipuram.
- In 1925 Guru supported the famous Vaikom Satyagraha movement, which demanded entry for lower caste people in the Shiva temple at Vaikom and all temples in Kerala.
- His famous message "**One Caste, One Religion and One God to Mankind",** which was a clarion call to the mankind to unite, instead of breaking down in the name of caste and religion.
- This philosophy formed the basis for his reform movements, which sought to remove inequalities and social distortions.

Vaikom Satyagraha (1924–25) was a satyagraha (social protest) in erstwhile Travancore (now part of Kerala) against untouchability and caste discrimination in Hindu society of Kerala. The movement was centered around the Sri Mahadeva Temple temple at Vaikom, in the present day Kottayam district. The Satyagraha was aimed at securing freedom to all sections of society to pass through the public roads leading to the Sri Mahadeva Temple and was lead by prominent leaders from Ezhava community including Sree Nrayan Guru.

- In this way, he drew nationwide attention and appreciation from Mahatma Gandhi.
- Sree Narayana Guru also emphasized the practice of ideals of cleanliness, promotion of education, agriculture, trade, handicrafts and technical training as a part of the Sivagiri pilgrimage.

Ezhavas

- Sri Narayana Guru articulated a doctrine aimed at improving the Ezhavas social position.
- He urged them to abandon the occupation of toddy tapping and to abstain from liquor.

SNDP Movement

- Sri Narayana Guru formed a programme of action known as the Sri Narayana Dharma Paripalana Yogam (SNDP).
- The Movement took up several issues, including the right of admission to public schools, recruitment to government employment, entry into temples, on roads and political representation.
- Guru did not approve polygamy and polyandry. He discouraged some unnecessary traditions in marriage.

Religious harmony

- He considered all religions to be a way for man's goodness and welfare and thus are equal.
- He held that the essence of all religions is one and the same, and advocated the comparative study of all faiths.

Literature

- Sree Narayana Guru had proficiency in Sanskrit, Malayalam and Tamil and had written by way of hymns of prayer to different gods in all three languages, translations, philosophy and teachings.
- Some of the notable ones are "Atmopadesa Sathakam " and Darsanamala " which give in condensed way the moral and spiritual principles.

Philosophy

- Narayana Gurudev was a mystic who contemplated the concept of Advaita or non-duality or the non-differentiation between the Atma and the Paramatma.

Science

- Sree Narayana Gurudev intuitively knew the potential of science and technology and had insisted that science and technology be included as an integral part of the Sivagiri pilgrimage conventions.
- Sree Narayana Gurudev's Adyaropa Darsanam **(Darsanamala) explains the creation of universe.**

Relevance of Sree Narayan Guru

- Gurudev's philosophy of Universal Oneness has special relevance in the contemporary global context where in the social fabric of many countries and communities are being eroded by hatred, violence, bigotry, sectarianism and other divisive tendencies.

LALA LAJPAT RAI

GS-I MODERN HISTORY

Context

- Recently, Prime Minister Modi paid tribute to Lala Lajpat Rai on his Jayanti.

Legacy

- Popularly known as "Punjab Kesari", Lala Lajpat Rai, is **remembered for his role during the Swadeshi movement** and for his advocacy of education.
- He had joined the Indian National Congress (INC) at the early age of 16 and participated in many political agitations in Punjab.
- In 1885, he established the **Dayanand Anglo-Vedic School in Lahore** and remained a committed educationist throughout his life.
- He co-founded the **Punjab National Bank in 1894**.
- He had opposed the partition of Bengal and founded the **Home Rule League of America in 1917** in New York.
- He was elected **President of the Indian National Congress at the Calcutta session-1920**. Mahatma Gandhi's Non-cooperation Movement was launched in this very session.

- As he took much interest in the condition of the working class people, he was also elected as the **President of the All India Trade Union Congress.**
- He was the **founder of Arya Gazette** and was its editor as well.
- He also **founded the Servants of People Society** in 1921.
- He was elected deputy leader of the Central Legislative Assembly in 1926.
- He moved a resolution in the assembly in 1928, refusing cooperation with the Simon Commission as the Commission had no Indian members.
- Rai passed away at Lahore in 1928 after he was attacked by police during a protest rally against the Simon Commission.

Important works

- Gifted with a perceptive mind, he was a prolific writer and authored several works like-
  - ✓ History of Arya Samaj,
  - ✓ England's Debt to India,
  - ✓ Evolution of Japan,
  - ✓ India's Will to Freedom,
  - ✓ Message of the Bhagwad Gita,
  - ✓ Political Future of India,
  - ✓ Problem of National Education in India,
  - ✓ the travelogue 'United States of America.
  - ✓ Young India: An Interpretation
  - ✓ Unhappy India

Importance of Lala Lajpat Rai

- Lajpat Rai belonged to that period, when extremists like Aurobindo, Bal Gangadhar Tilak and Bipin Chandra Pal had started finding faults in the "Moderate" politics. They called it "political mendicancy" and questioned the inadequacies of gradual constitutional progress.
- However, historian R.C. Mazumdar rightly, observed, "The ideals of new nationalism preached by Tilak, Arabinda and Lajpat Rai assumed concrete shape, which may be regarded as the precursor of the Civil Disobedience Movement of Mahatma Gandhi".
- As early as 1897, Rai had **founded the Hindu Relief Movement** to provide help to the famine -stricken people. This prevented them from falling into the clutches of the missionaries.
- He had called for technical education and industrial self-help.
- In the wake of the Swadeshi movement, when "the idea of a national education caught the imagination of the people of India", it was Lajpat Rai and Bal Gangadhar Tilak, who "propagated the idea".
- Rai went to set up the National College in Lahore.
- As one contemporary British report pointed out, "The head and centre of the entire movement (Swadeshi) is Lala Lajpat Rai, - he is a revolutionary and a political enthusiast who is inspired by the most intense hatred of the British government".
- For his growing involvement in the freedom movement, he was given the toughest prison sentences in far away Mandalay (now Myanmar) in 1907 without trial.
- He had also led the protest against the horrendous massacre of Jalianwalla Bagh.
- He visited USA and Japan and kept in touch with the Indian revolutionaries. In England, he also became **a member of the British Labour party.**
- Lajpat Rai was a firebrand Indian nationalist leader who inspired young men of his generation and kindled latent spirit of patriotism in their hearts.

GOVIND BALLABH PANT

GS-I MODERN HISTORY

Context

- A statue of freedom fighter Govind Ballabh Pant that was removed from the Parliament premises recently would be unveiled at its new location.

Contribution

- Govind Ballabh Pant was a freedom fighter and one of the architects of modern India.

Social

- Pant worked towards bringing reforms for the upliftment of various sections of the society.
- In 1914, he extended his support to a village council in its endeavour to abolish the coolie-beggar system, under which porters were forced to carry luggage of British officials for free.
- In Kashipur, he set up an organization called Prem Sabha that started working towards several social reforms.
- It prevented a school from being shut down by British because of non-payment of taxes.

Political

- He was elected to the Legislative Assembly of the United Provinces of Agra and Oudh.
- During his term in the Assembly, he raised issues that mattered to masses.
- He supported the cause of forest conservation.
- When Mahatma Gandhi started his salt march in March 1930, Pant followed in his footsteps, organising a salt movement in the United Provinces.
- For his move, he was arrested in May 1930 and had to spend several weeks in prison.
- Pant took over as the Chief Minister of the United Provinces from 1937 to 1939.
- He passed the Hindu Code Bill and made monogamy compulsory for Hindu men and gave the Hindu women the rights of divorce and inheritance to ancestral property.
- A key player in the drafting of the Constitution, he served as India's home minister from 1955 to 1961.
- **Note:** It was during his tenure that states were reorganised on linguistic lines.

Economic

- Among his achievements was the abolition of the zamindari system.
- He encouraged many cottage industries in the country.
- During his tenure as the Chief Minister his judicious reforms and stable governance in the Uttar Pradesh stabilized the economic condition of the most populous State of India.
- He also worked to protect farmers from excessive rents levied by the British government.

TRADITIONAL TOY INDUSTRY

GS-I CULTURE & HERITAGE

Context

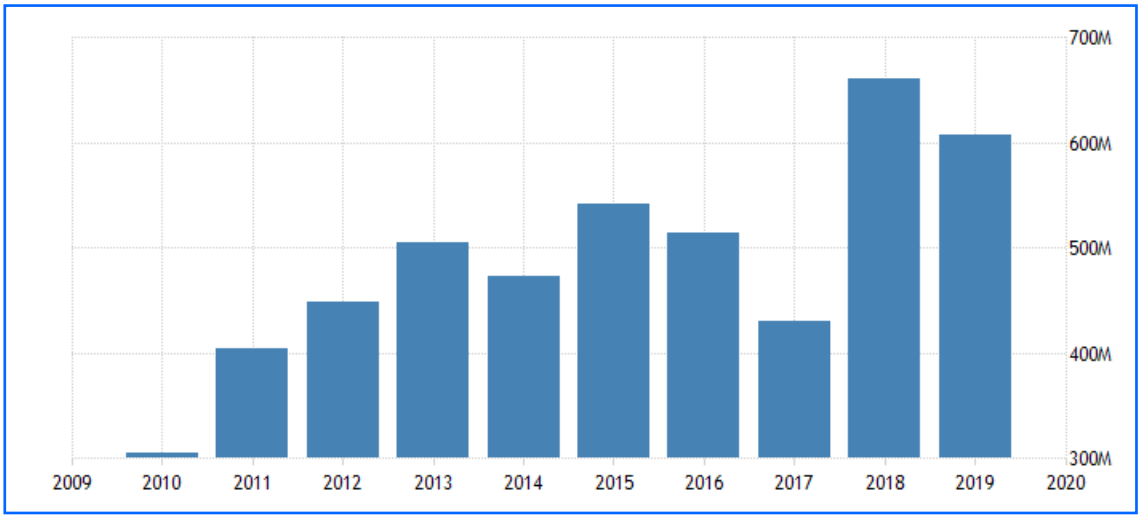
- Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry has devised a comprehensive action plan with steps being taken to boost production & sale of indigenous toys across the country.

India's traditional toy Industry

- India's toy-making enterprise dates back to the Indus Valley Civilization.
- Despite this the global and national market slice of locally-made toys is dismal.
- The size of the organized toy industry in India is estimated to be between Rs 3,500-4,500 crore, of which native toys constitute 12-13 per cent.
- Bulk of its toys is imported from China and Taiwan.

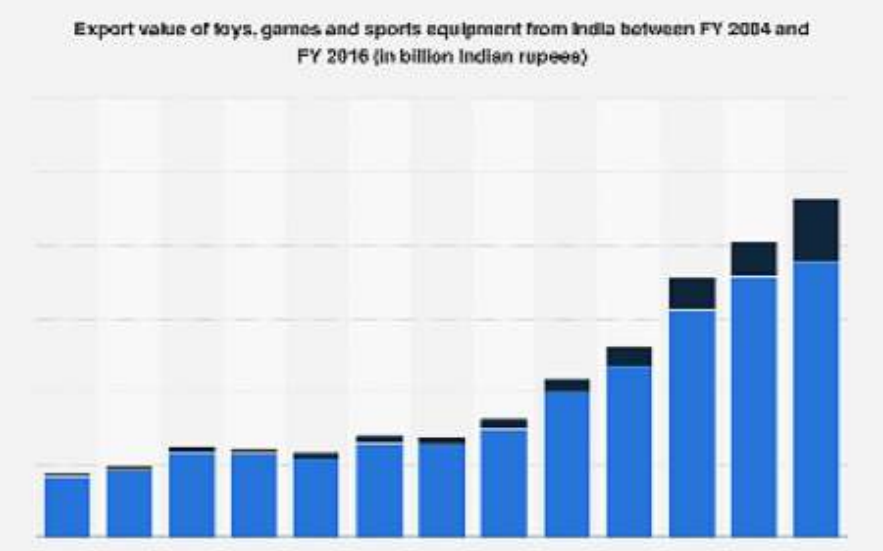
Import statistics for toys in India

- India imported toys worth Rs 10,000 crore in 2018-19.
- Almost 85% of the toys sold in India are imported, with China being the top source, followed by Sri Lanka, Malaysia, Germany, Hong Kong and the US.



Export statistics for toys from India & major destinations

- The export value of toys, games and sports equipment from the country during the 2016 financial year, amounted to around 18.92 billion Indian rupees.
- The major countries acquiring a great share in exports are the UK, USA and the UAE.



Issues

- **Unorganized Sector:** About 60% of India's 3,500 toy manufacturers operate in the unorganized sector, from small units with sometimes as few as five employees.
- **Lack of Capital:** They don't have the capital to suddenly increase production.
- **Dominance of China:** Indian market is dominated by Chinese toys which started flooding after liberalization.
- **Closure of Factories**: Many toy factories closed down in the past 30 years; they couldn't compete with China-made toys, especially the electric ones.
- **Infrastructure:** India lacks equipment to make electric toys. For this we need to import machines from S Korea and Japan.

Prospects

- Indian Toy Industry has tremendous potential to raise its productivity, create employment and for all-round development of the economy.
- The industry which is labour intensive could effectively compete against China and generate lakhs of jobs supporting the MSME sector.
- The Indian toys market was worth US$ 1.75 Billion in 2019.
- Revenue in the Toys & Games segment amounts to US$38,168m in 2020.

- The market is expected to grow annually by 9.6% (CAGR 2020-2023).

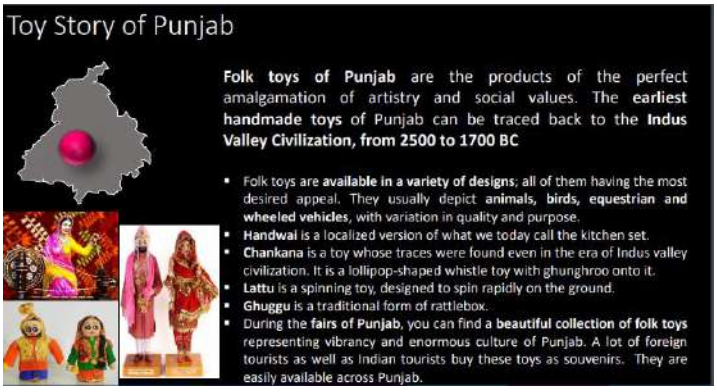
The government has taken several steps in the direction – Examples:

- ✓ raising duties on imported toys,
- ✓ issuing quality control order that adheres to global safety standards, and
- ✓ coming up with a National Action Plan for the industry.
- ✓ NAP aims to involve 14 central ministries on need basis and develop 13 toy clusters across the country, giving a major boost to the economies of the respective regions.
- ✓ The Centre is also planning a National Toy Fair as a part of the initiative to encourage domestic toy manufacturing.
- ✓ The country's first toy manufacturing cluster is coming up in Koppal across 400 acres of SEZ land, sanctioned by Karnataka government.
- ✓ Gujarat has written to global toy manufacturers across the US, Canada, Europe, Japan urging them to set up industry in the state assuring them best possible assistance.
- ✓ Maharashtra which contributes 32.6% of the country's toy exports has also proposed to set up clusters at Khalapur, Shahapur, Nashik, Malegaon, Solapur, among other places.
- ✓ The West Bengal EXIM association has sought land from the state government to set up a toy park in the state.
- ✓ A resource centre will be created for north-eastern and tribal toys.

Some Indigenous Toys of India

Chandigarh- Wooden Boards & showcase, Wooden Jali, Sunmica Boards, God statues
Haryana- babushka dolls, lacquer dolls, string puppets, clay Indian toys, leather stuffed toys
TamilNadu- Thanjavur Thalaiyatti Bommai , Choppu saman
Himachal Pradesh-Wooden Toys
Uttarakhand- Wooden toy-making
West Bengal- Clay Toys, Teracotta Toys, Wooden Toys, Batik Print Cloth toys, Bamboo Musk
Jammu & Kashmir- Walnut wood carving, Paper Machie
Uttar Pradesh- lacquered toys and miniature utensils,
Odisha- Papermade Toys, Clay toys, wooden toys, Aplic
Punjab-Folk toys, Handwai, Chankana, Lattu, Ghuggu
Kerala-Kathakali dance dolls, animal shaped toys, Woodcraft
Jharkhand- Wooden toys, Painted cloth dolls, Toy Archery

Karnataka- Channapatna
Telangana-Nirmal Toys
Chhattisgarh-Clay & Terracotta, Dhokra Metal Casting, Wood Carving, Metal craft toys
Madhya Pradesh- Adivasi Gudia Hastashilpa (Dolls), Betel Nut's Toys, Tin-Toys
Maharashtra- Wooden Toys of Sawantwadi , Bahatuktli
Gujarat- Puppets, Stuffed Toys Made of wood & cloth, Clay toys and figures
Goa-Wooden Toys, Soft Toys, Coir Toys
Daman & Diu- Tortoise shell toys and crafts,
Bihar- Horse & rider, Bamboo toys, Toy House, Cloth dolls, Turtle toys
Andaman & Nicobar Island- Timber Toys, Coconut shell toys


Toy Story of Punjab
Folk toys of Punjab are the products of the perfect amalgamation of artistry and social values. The earliest handmade toys of Punjab can be traced back to the Indus Valley Civilization, from 2500 to 1700 BC
Folk toys are available in a variety of designs; all of them having the most desired appeal. They usually depict animals, birds, equestrian and wheeled vehicles, with variation in quality and purpose.
Handwai is a localized version of what we today call the kitchen set.
Chankana is a toy whose traces were found even in the era of Indus valley civilization. It is a lollipop-shaped whistle toy with ghunghroo onto it.
Lattu is a spinning toy, designed to spin rapidly on the ground.
Ghuggu is a traditional form of rattlebox.
During the fairs of Punjab, you can find a beautiful collection of folk toys representing vibrancy and enormous culture of Punjab. A lot of foreign tourists as well as Indian tourists buy these toys as souvenirs. They are easily available across Punjab.

Toy Story of Uttar Pradesh
Varanasi is known for lacquered toys and miniature utensils. The sets of birds, animals, orchestras, soldiers and dance ensembles are made in wood, gaily painted and packed in boxes.
Mirzapur in Uttar Pradesh are famous for their wooden lacquer ware and wooden toys. Design are created with the natural veins of the wood
Chitrakoot in Uttar Pradesh has a distinct place in the country in wood craft. A well mixture of traditional way and modernity done and craftsmen of the districts added new horizons

Toy Story of Rajasthan

- **Udaipur** is a big centre for **wooden toys**. The craftsmen use the local **wood doodhia which is soft** and can be finely chiselled and shaped. The toys are **lacquered and polished** with leaves of a **flowering cactus** to give them a better look and increase their life.
- **Bassi in Chittorgarh district** is another noted centre for **wooden toys** where the entire village is engaged in wood-carving and in making wooden products. **Jaipur too is very well known for cloth dolls and toys** which are generally dyed and stuffed with waste material.

Toy Story of Maharashtra

Wooden Toys of Sawantwadi in Ratnagiri is famous and has followed traditional craft of Wooden toy making from centuries.

- Sawantwadi is popularly known for Ganjifa playing cards and wooden toys made from mango tree traditionally done by the Chitari or Chitrakar community.
- Bahatuktli is the miniature version of all household items put together

Toy Story of Chhattisgarh

The tribes of Chhattisgarh are excellent artisans, experts in crafting artistic Toys/ Items with **clay, stone, bamboo and metals.**

- They express their deep talent and through Gharwha art, Wood art, and other with peacock feathers.
- Due to availability of bamboo in the state the tribals have been traditionally making Toys/Crafts form bamboo and wood based products.

Toy Story of Madhya Pradesh

Adivasi Gudia Hastashilpa (Dolls) From Jhabua

- Exhibits the dual phenomenon of the tribal way of life comprising of colorful ethnics and means of daily subsistence of Bhil and Bhilala tribes from Jhabua Dist. who make these toys

Betel Nut's Toys from Rewa

- Developed by Kunder family in Rewa City this toy is made from betel nuts(Suparis.) Earlier these families had the task of making wooden toys. Later on experimenting with the betel, these people started preparing the betel nut toys.

Tin-Toys

- Most of the toys are made using machinery of gears and pinions
- The tin toys in India were extremely famous a few decades back as India didn't have access to any more evolved toys then.

Toy Story of Andhra Pradesh: Kondapalli Toys

The famous Kondapalli toys are made in Kondapalli of Krishna district near Vijayawada. Also Known as Bommala Koluvu

- The art is believed to be ancient with Mythological roots, originating from MuktaRishi who obtained the Knowledge from Lord Shiva.
- The style of these toys is a mix of Islamic and Rajasthani art, popular for their realistic expressions. The subject of the toys vary from Mythological scenes to Village life, Animals, Birds etc.

Toy Story of Karnataka- Channapatna Toys

Referred to as the Lacquerware toys, **Channapatna** has become a household name in Karnataka

- Received a Geographical Indication (GI) under the World Trade Organization (WTO)
- The toys have ensured that innovation and being eco-friendly become the hall mark of this locally known Gombegala Ooru (toy town)
- The Hereditary artists are known as *'Chitragars'*.
- The wood, primarily used was 'ivory-wood', though rose and Sandal wood were also used.

Toy Story of Telangana- Nirmal Toys

- The style of Nirmal toys is a beautiful assimilation of Indian and Mughal art – used Ajanta floral and combines with Mughal miniature
- The material used is soft wood & enamel colours. Panicki and white sander is the local available softwood, easy to shape and give perfect finish. The enamel colours give the toy the shine.
- The artisans are called *Naqqash*, they came from Rajasthan in 17th Century.

Toy Story of Andhra Pradesh: Etikoppakka Toys

Popularly known as **"Etikoppakka Bommalu"** the Etikoppakka Toys got the Geographical Indications tag in 2017

- The wood used to make the toys is soft in nature and the art of toy making is also known as Turned wood Lacquer craft
- Today around 700 artisans are working on the Etikoppakka Toys
- Cannons, bullock carts, Lord Ganesha, Lord Balaji are very popular figurines

Toy Story of Jammu & Kashmir

Walnut wood carving is an ornamental and delicate craft process that is unique to Kashmir due to the concentration of walnut trees in this region

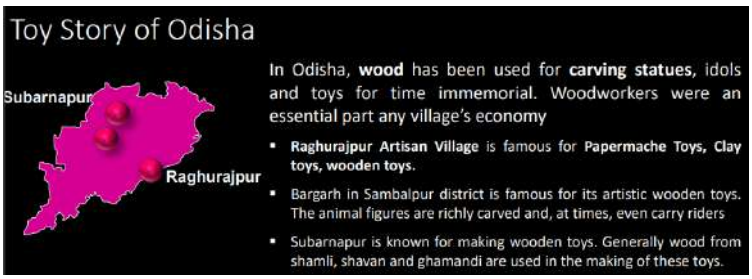
- There are five main styles of woodcarving: Undercut (Khokerdar), Open or Lattice work (Jalidahr), Deep carving (Vaboraveth), Semi carving (Padri) & Shallow carving (Sadikaam)
- Paper Machie is one of the unique crafts in the entire world. The product is protected under the Geographic Indication Act 1999 of Government of India.

Toy Story of Tamilnadu

Thanjavur Dancing Dolls, traditionally known as **Thanjavur Thalaiyatti Bommai**, are a part of an eclectic heritage of beautiful handicrafts from **Tanjore**

- They are now listed in the Government of India's Geographical Indications Registry.
- **Choppu Saman** is a traditional **role play toys for kids.** All the **utensils** are either made up of **fine wood** with **polished edges or clay** and painted with harmless **natural colors.**

Toy Story of Kerala
Traditionally, coconut palm leaves are used in making a wide range of toys & are the most popular toys played and are made at homes itself
Coir is used in making eco-friendly toys & Coconut shell products are used to make animal shaped toys
Woodcraft is another famous craft item of Kerala
Lacquer Ware, the craft combining metal and wood, is a favorite among the tourists. A wide variety of lacquer products are produced in Kerala especially in Ernakulam district
Leather is used to make puppets for Tholpavakoothu (shadow puppetry)


Toy Story of Odisha
Subarnapur
Raghurajpur
In Odisha, wood has been used for carving statues, idols and toys for time immemorial. Woodworkers were an essential part any village's economy
Raghurajpur Artisan Village is famous for Papermache Toys, Clay toys, wooden toys.
Bargarh in Sambalpur district is famous for its artistic wooden toys. The animal figures are richly carved and, at times, even carry riders
Subarnapur is known for making wooden toys. Generally wood from shamli, shavan and ghamandi are used in the making of these toys.

Toy Story of Daman & Diu
Diu
Daman
Daman and Diu is famous for Mat Weaving Craft and Tortoise shell toys and crafts.
The residents make use of traditional and folk motifs to make beautiful mats and toys
The craftsmen make several decorative toys, household items using these shells
The seashores on the coastline of Diu are home to a variety of tortoise and their shells are used by skilled craftsmen to create decorative toys and household items.

Toy Story of Bihar
Dolls & Toys are made with different materials such as clay, cloth and wood with each material having its own style and designated areas where the craft is practiced.
Kanyaputri Dolls (Champaran): This art form comes from Champaran. In the month of Saavan (monsoon), sisters make dolls for their brothers and dip them in the pond and brother brings these dolls back
Sikki Work: Sikki work is a craft whereby the craftsmen turn unnecessary riverside grass into beautiful decorative objects
Bamboo Work: Bamboo work has been remained a culture of Bihar throughout the ages and time. Right from the pre-historic time forest dwelling tribes are experts in bamboo and cane work.

Asharikandi Terracotta toys – Assam

- The traditional toys in Assam are made with clay, bamboo, pith, cloth and mud in the figures of brides and grooms, animals, birds and deities.
- But one of the most famous dolls found in the region is from Asharikandi.
- Located 2,500 km east of the ancient city of Harappa lies the village of Asharikandi in Assam's Dhubri district.
- It's influence of the prehistoric Indus Valley Civilisation site is evinced in the heritage craft of terracotta toys.

Natungram Dolls – West Bengal

- In Natungram, Burdwan, West Bengal the age-old tradition of doll making has been retained to an extent.
- Crafted from a piece of wood chiseled to the requisite length, the doll gets the face and its attire painted on it.
- The Gour-Nitai dolls are one of the distinct types of these dolls which came from the wave of Bhakti movement in Bengal in the 15 and 16th century.

Way ahead

Government's Support

- A report by India's **National Productivity Council** suggests that the country's toy-manufacturing will need more support from the government to upgrade its technologies and research and development facilities.
- The Centre's support in the form of export subsidies, single window clearance, fiscal incentives, technology upgradation will help domestic toy manufacturing to grow swiftly.

Incentives

- The government should look for reducing duties.
- It should incentivize manufacturing of Electric Toys.

Re-skilling

- It is important to re-skill 4-5 lakh artisans in the country to help them catch up with evolving demands of the toy industry.
- This is because the Toy Industry is rapidly moving towards technology with AI (artificial intelligence) and IoT (internet of things)-enabled toys making major inroads.
- With more engagement, skill diversification, and entrepreneurial enthusiasm, a revival of the Indian toy industry looks imminent.

Investments

- Companies such as Aequs, Funskool have already shown interest in coming up with manufacturing units in the country.
- Efforts should be made to strengthen indigenous brands such as puppets.

Technology

- The Union Ministry of Micro Small and Medium Enterprises (MSME) should provide technology upgrades to toy manufacturers.
- Toys made from recyclable materials should be promoted in a big way.

Self-Reliance

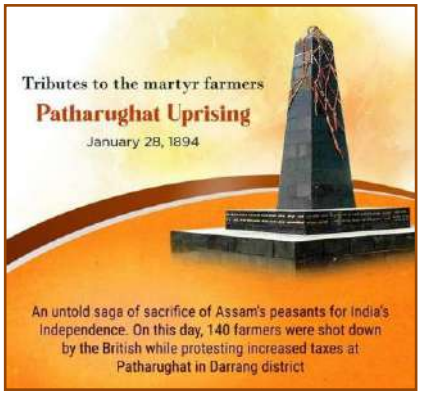
- The government is giving much needed emphasis on bringing in transformative changes in the domestic toy industry by promoting "Vocal for Local" and "Make in India" under the Atmanirbhar Bharat scheme.
- Youth should be encouraged to come up with innovative designs of toys.
- With parents turning more eco-friendly in their choices for their children and 'Vocal for Local' bid gaining steam in India, it is time that we work to revive the craftsmanship of indigenous and heritage toys of our country.

PATHARUGHAT PEASANT UPRISING

GS-I MODERN HISTORY

Context

- Patharughat peasant uprising took place on January 28, 1894 in Assam.


Tributes to the martyr farmers
Patharughat Uprising
January 28, 1894
An untold saga of sacrifice of Assam's peasants for India's Independence. On this day, 140 farmers were shot down by the British while protesting increased taxes at Patharughat in Darrang district

What led to the Patharughat uprising?

- After the British annexation of Assam in 1826, surveys of the vast lands of the state began.
- On the basis of such surveys, the British began to impose land taxes, much to the resentment of the farmers.
- In 1893, the British government decided to increase agricultural land tax reportedly by 70- 80 per cent.
- Up until then the peasants would pay taxes in kind or provide a service in lieu of cash.
- Across Assam, peasants began protesting the move by organising Raij Mels, or peaceful peoples' conventions.
- Whenever there was a Raij Mel, the British used to come down on it with a heavy hand to disperse them.
- The British perceived them as "breeding grounds for sedition".
- On January 28, 1894, when the British officers were refusing to listen to the farmers' grievances, things heated up.
- There was a lathi charge, followed by an open firing which killed many of the peasants present.

Significance of the event

- For the larger Assamese community, Patharughat comes second only to the "Battle of Saraighat", when the Ahoms defeated the Mughals in 1671.
- It is extremely inspirational for the Assamese community, like a national awakening.
- "Battle of Patharughat", was a **peaceful protest** and a precursor to the Civil Disobedience movement, which was later propagated by Mahatma Gandhi
- It was a **pre-Congress, pan-Indian anti-imperialist movement.**
- In this movement there was an **absence of a well defined leadership** but the masses organized themselves to resist the autocratic designs of the British.

Context

- Ahead of Tamil Nadu Assembly polls, Jallikattu has become the subject of politics.

About Jallikattu

- Jallikattu is a traditional bull taming event practiced in Tamil Nadu as a part of Pongal celebrations on Mattu Pongal day.
- The sport involves releasing a running bull into a crowd of people.
- Participants attempt to grab the bull's hump and ride it for as long as possible, in an attempt to stop it.

BULL RUN IN COURT
2006
Bench of Madurai HC gives directions to regulate conduct of jallikattu
2009
State govt enacts Tamil Nadu Regulation of Jallikattu Act, 2009 to regulate sport by imposing relevant conditions to protect the animal
Nov 2010
SC lets TN govt permit jallikattu for five months in a year. Tells collectors to ensure bulls are registered with Animal Welfare Board of India
July 2011
Centre issues notification banning use of bull a performing animal
May 2014
SC strikes down TN law and bans jallikattu altogether
Jan 2016
Centre issues notification to lift ban. Says "bulls may be continued to be exhibited or trained as a performing animal at events such as jallikattu in Tamil Nadu". SC upholds ban

History

- Jallikattu has been known to be practiced during the Tamil classical period (400-100 BC).
- It was common among the Ayar people who lived in the 'Mullai' geographical division of the ancient Tamil country.
- Later, it became a platform for display of bravery and prize money was introduced for participation encouragement.
- A seal from the Indus Valley Civilization depicting the practice is preserved in the National Museum, New Delhi.

The controversy over Jallikattu

- Jallikattu first came under legal scrutiny in 2007 when the Animal Welfare Board of India and the animal rights group PETA moved petitions in the Supreme Court against Jallikattu as well as bullock cart races.
  Note: Please go through the Timeline to know about the legal battles.
- Over 200 people - both tamers and spectators - have lost their lives in the last two decades.

Arguments in favor of Jallikattu

1. Sport reflective of local tradition and culture
2. Banning will affect livelihoods of livestock keepers
3. Symbolic of intimate cattle and agriculturalists' bond
4. Bulls sent for slaughter due to ban
5. Breeders say Jallikattu and bullock cart racing gave the region a healthy male-to-female ratio of native cattle.
6. Farmers provided extra care for the animal since the bull represents the pride of their family and community. If the ban continues there will be no incentive to hold on to the bulls. The Kangayam breed is native to western Tamil Nadu and used extensively in Jallikattu.
7. Cultural right under Article 29(1) of the Constitution – "Any section of the citizens residing in the territory of India or any part thereof having a distinct language, script or culture of its own shall have the right to conserve the same"

Arguments against:

1. Bulls physically and mentally tortured
2. Violates the Prevention of Cruelty to Animals act, 1960.

3. Violates Article 51A of the constitution (It mandates every citizen to protect forests, lakes, rivers, wild animals etc. Apart from that, Constitution also reminds us to show compassion towards birds and animals)
4. Men killed and many injured during bull fight
5. No historical, cultural or religious significance
6. India to be considered archaic and backward
7. Dalit activitsts have alleged that Jallikattu events are controlled by a particular community, the Thevars, and that the sport perpetuates caste discrimination.

FOR: THE BULL IS NOT HARMED. PEOPLE SIMPLY TRY TO TAME IT.
AGAINST: WHILE TAMING IT, HUNDREDS OF PEOPLE HARM THE BULL - AND THEY THEMSELVES GET HURT.
FOR: COURTS SHOULD STAY OUT OF RELIGIOUS MATTERS.
AGAINST: COURTS HAVE TO ENSURE THAT THE RIGHTS OF ALL -INCLUDING ANIMALS - ARE PROTECTED.
FOR: IT'S AN INTEGRAL PART OF TAMIL CULTURE & TRADITION.
AGAINST: TRADITIONS THAT HARM ANYONE SHOULD BE STOPPED.
FOR: MOST PEOPLE IN TN WANT JALLIKATTU AND IN A DEMOCRACY, THE MAJORITY VIEW IS RESPECTED.
AGAINST: EVEN IF WE ASSUME THAT A MAJORITY OF TAMILIANS WANT JALLIKATTU, THE MAJORITY IS NOT ALWAYS RIGHT.
FOR: ONLY HINDU CUSTOMS ARE TARGETED, COURTS HAVEN'T STOPPED GOAT SLAUGHTER ON EID.
AGAINST: FROM ALIMONY (IN SHAH BANO CASE) TO TRIPLE TALAAQ, COURTS HAVE RULED AGAINST ILL-PRACTICES IN ISLAM.
FOR: IF SPAIN CAN PROTECT ITS CUSTOM OF BULLFIGHTS, WHY SHOULDN'T WE PROTECT OURS?
AGAINST:IT'S NOT RIGHT TO CHERRY-PICK ONE ASPECT OF A FOREIGN CULTURE AND COMPARE IT WITH OURS.
FOR: THE MOST POWERFUL BULL WINS AND IT IS USED FOR BREEDING, THUS PRESERVING GENETIC STRENGTH OF INDIGENOUS BREEDS.
AGAINST: THERE ARE SCIENTIFIC METHODS FOR SELECTIVE BREEDING OF INDIGENOUS BREEDS.
FOR: INFERENCE IN JALLIKATTU, DIWALI,ETC WILL DESTROY INDIAN CULTURE.
AGAINST:INDIAN CULTURE IS NOT SO WEAK THAT IT WILL GET DESTROYED BY TIMELY REFORMS.

Legal Provisions

- In 2014, the Supreme Court struck down the Tamil Nadu Regulation of Jallikattu Act of 2009 – a state law that permitted the event – stating that it violates the national law. "Even bulls have rights against torture,"- Court.
- The Court had ruled that the Prevention of Cruelty to Animals Act, 1960, "over-shadows or overrides the so-called tradition and culture".
- The court drew upon Upanishadic wisdom and advised Parliament to "elevate rights of animals to that of constitutional rights… so as to protect their dignity and honour".
- The court upheld the 2011 order of the environment ministry, declaring sports involving animals such as Jallikattu illegal.

Present Status- Is it legal or banned?

- The state government has legalised these events, which has been challenged in the Supreme Court. Hence, this case is pending in the Supreme Court.
- After massive outrage and protests, the Tamil Nadu government passed an amendment to the central government's Prevention of Cruelty to Animals Act 1960 to allow Jallikattu.
- Except in Tamil Nadu and Karnataka, where bull-taming and racing continue to be organised, these sports remain banned in all other states including Andhra Pradesh, Punjab and Maharashtra due to the 2014 ban order from the Supreme Court.
- However, defying the Supreme Court ban, the event was held in many places in the states.

Way ahead

- Jallikattu is a part of the tradition, culture and life of the people in Tamil Nadu. But Tradition and culture are not immune to change. Ban of Sati Pratha is a testimony to that.
- However, there is an option that rather than an outright blanket ban, regulation of the sport, may be a better way ahead.
- What we need is Jallikattu with strict regulations.
- It is also time that appropriate protective gear is devised and made mandatory for participants.
- Participant and onlooker alike should be held under rigorously monitored regulations and restrictions.

Kambala

Kambala is an annual buffalo race held in Karnataka. Traditionally, it is sponsored by local Tuluva landlords and households in the coastal districts of Udupi of Karnataka and Kasaragod of Kerala. This region is collectively known as Tulu Nadu. The Kambala season generally starts in November and lasts until March.

Traditional Kambala was non-competitive, and the buffalo pair was run one by one. In modern Kambala, the contest takes place between two pairs of buffaloes. There is also a ritualistic aspect, as farmers race their buffaloes to give thanks for protecting them from diseases.

JAGANNATH TEMPLE

GS-I CULTURE & HERITAGE

Context

- Recently, The Shree Jagannath Temple Administration (SJTA) announced that devotees need not produce their Covid-19 negative report for getting entry into the 12th century shrine in Puri from January 21.

Jagannath Temple

- The temple was built by the **Ganga dynasty king Anantavarman Chodaganga** in the **12th century CE.**
- The temple is sacred to **Vaishnava traditions.**
- Bhakti movement Saints, such as **Ramananda and Ramanuja**, were closely associated with the temple.
- The temple is of particular significance to the followers of the **Gaudiya Vaishnavism whose founder was Bhakti saint Chaitanya. Chaitanya** was attracted to the deity, Jagannath, and lived in Puri for many years.
- The temple is **one of the Char Dham- Badrinath, Dwaraka, Puri, Rameswaram**
- The temple was called **"White Pagoda".** Konark Sun temple was called "Black Pagoda".
- Both temples served as important landmarks for sailors in the Bay of Bengal.

Jagannath Rath Yatra

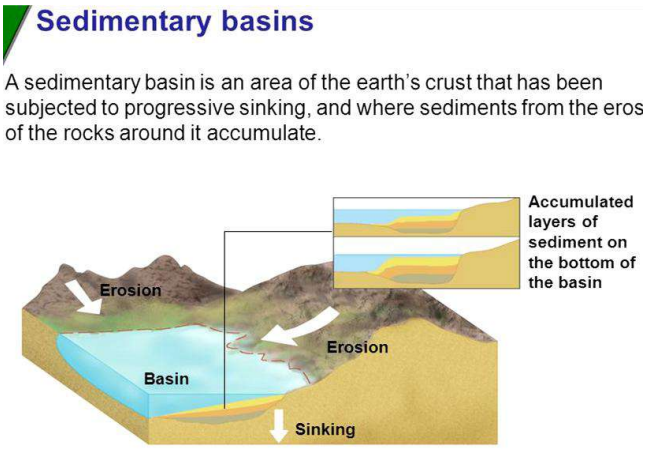
- It is the **oldest Chariot festival** in India and the World.
- It commemorates **Lord Jagannath's** annual visit to **Gundicha Temple**.
- As part of Ratha Yatra, the principle deities **Lord Jagannath**, **Balabhadra, Devi Subhadra**, **Sudarshan,** are taken out in a procession out of Jagannath Temple and placed in the Chariot.
- Finally, the devotees pull the chariots up to the **Gundicha Temple - the birthplace of the Lords**.

Context

- Oil and Natural Gas Corporation (ONGC) Limited has begun crude oil production from the Asokenagar-1 well, Bengal Sedimentary Basin in 24 Paragana district.

What are Sedimentary Basins?

- Sedimentary basins are places where subsidence of Earth's crust has allowed sediment to accumulate on top of a basement of igneous and metamorphic rocks.
- Over geologic time these sediments and associated fluids are chemically and mechanically transformed through the compaction and heating associated with basin subsidence.
- These transformations yield the energy resources of petroleum, natural gas, coal, geothermal energy, and uranium.
- They also lead to the precipitation of a wide range of ores for important metals such as copper, lead, zinc, iron, and mercury.


Sedimentary basins
A sedimentary basin is an area of the earth's crust that has been subjected to progressive sinking, and where sediments from the eros of the rocks around it accumulate.
Accumulated layers of sediment on the bottom of the basin
Erosion
Erosion
Basin
Sinking

Types of Basins

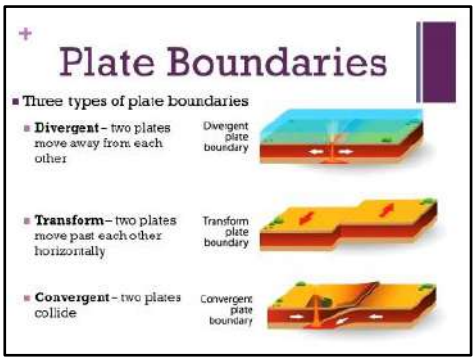
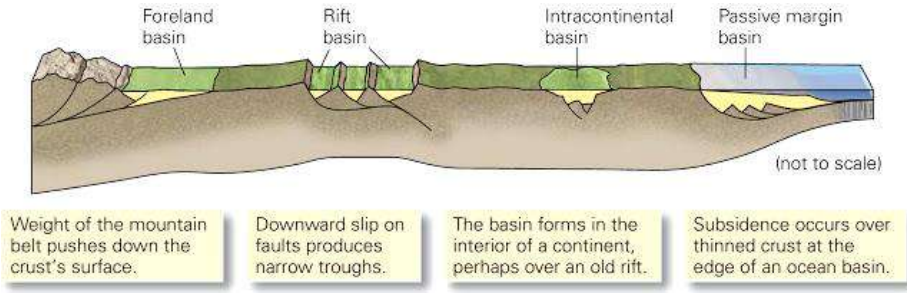
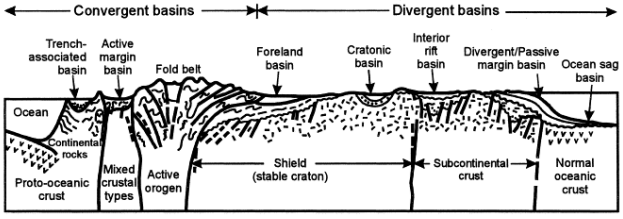
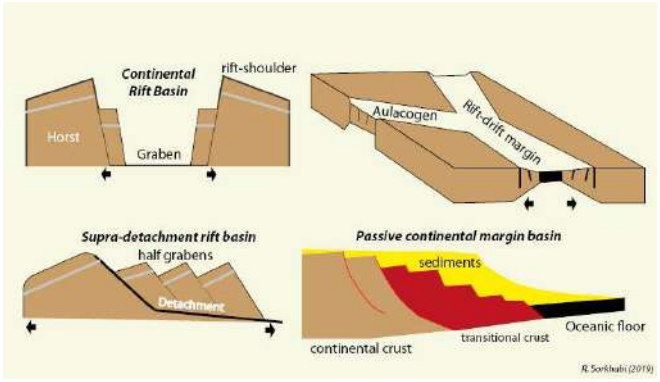


Plate Boundaries
Three types of plate boundaries
Divergent – two plates move away from each other
Divergent plate boundary
Transform – two plates move past each other horizontally
Transform plate boundary
Convergent – two plates collide
Convergent plate boundary

- The style of evolution of a basin depends on the tectonic realm where it is located
- The mechanism of the basin formation and its development therefore vary according to the tectonic processes of the setup.
- Thus basins are classified and grouped under three plate tectonic processes:
  1. Divergent
  2. convergent
  3. Transform setting
- Geologists distinguish among different kinds of sedimentary basins in the context of plate tectonics theory. Let's consider a few examples.


Foreland basin
Rift basin
Intracontinental basin
Passive margin basin
(not to scale)
Weight of the mountain belt pushes down the crust's surface.
Downward slip on faults produces narrow troughs.
The basin forms in the interior of a continent, perhaps over an old rift.
Subsidence occurs over thinned crust at the edge of an ocean basin.





1. **Rift basins:** These form in continental rifts, regions where the lithosphere is stretching horizontally, and therefore thins vertically. As the rift grows, slip on faults drops blocks of crust down, producing low areas bordered by narrow mountain ridges. These troughs fill with sediment.
2. **Passive-margin basins:** These form along the edges of continents that are not plate boundaries. They are underlain by stretched lithosphere, the remnants of a rift whose evolution successfully led to the formation of a mid-ocean ridge and subsequent growth of a new ocean basin. Passive-margin basins form because subsidence of stretched lithosphere continues long after rifting ceases. They fill with sediment carried to the sea by rivers and with carbonate rocks formed in coastal reefs.
3. **Intra-continental basins:** These develop in the interiors of continents, initially because of subsidence over a rift. They may continue to subside in pulses even hundreds of millions of years after they formed, for reasons that are not well understood.
4. **Foreland basins:** These form on the continent side of a mountain belt because the forces produced during convergence or collision push large slices of rock up faults and onto the surface of the continent. The weight of these slices pushes down on the surface of the lithosphere, producing a wedge-shaped depression adjacent to the mountain range that fills with sediment eroded from the range. Fluvial and deltaic strata accumulate in foreland basins.

The recent discovery

- Discovery of the Ashoknagar Well made the Bengal basin India's eighth producing sedimentary basin.
- The other basins are --- Krishna-Godavari (KG), Mumbai Offshore, Assam Shelf, Rajasthan, Cauvery, Assam-Arakan Fold Belt and Cambay.
- The above seven basins of India produce 83 percent of established oil and gas reserves.

Sedimentary Basins of India

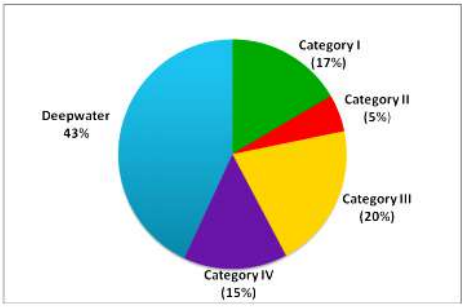
- According to the Directorate General of Hydrocarbons, there are 26 sedimentary basins in India.
- They cover a total area of 3.4 million square kilometer.
- Of these, 16 are on land basins, 7 located both on land and offshore and 3 completely offshore.
- Broadly Indian sedimentary basins have been divided into four categories based on maturity of hydrocarbon resources as under:
- Category-I: Basins, which have reserves and already producing.
- Category-II: Basins, which have contingent resources pending commercial production
- Category-III Basins, which have prospective resources awaiting discovery
- The categorization based on the prospectively of the basin as presently known is as under: →

Note: Read about Landform Formation, their types and Plate Tectonic Theory in details from NCERT.

Table : Categories of Indian sedimentary basins

Type of basins	Area (Sq. KM)	Hydrocarbons Prospectivity	Basins/ Region
Category I (7 Basins)	518500	Established commercial production	Cambay, Assam Shelf, Mumbai offshore, Krishna Godavari, Cauvery, Assam Arakan Fold Belt and Rajasthan
Category II (3 Basins)	164000	Known accumulation of hydrocarbons but no commercial production as yet	Kutch, Mahanadi-NEC & Andaman-Nicobar
Category III (6 Basins)	641000	Indicated hydrocarbon shows that are considered geologically prospectivity.	Himalayan Foreland, Ganga, Vindhyan, Saurashtra, Kerala-Konkan-Lakshadweep & Bengal
Category IV (10 basins)	461200	Uncertain potential which may be prospective by analogy with similar basins in the world.	Karewa, Spiti-Zanskar, Satpura-South Rewa-Damodar, Narmada, Decan Syneclise, Bhima-Kaladgi, Cuddapah, Pranhita-Godavari, Bastar, Chhattisgarh
Deepwater	1350000		East & west cost from 400 m water depth to EEZ
Total	3134700	-	

- Crude oil & natural gas production in the country is from 7 basins under category-I anddeepwater areas.
- In category-II basins, hydrocarbon discoveries have been made butcommercial production is yet to commence.
- The distribution of total Indian sedimentaryarea of 3.14 million square kilometer under different categories and deepwater is here: →



SOUTHWEST MONSOON 2020 REPORT

GS-I GEOGRAPHY

Context

- National Weather Forecasting Centre of the India Meteorological Department (IMD), has come out with the 'End of the Season—Southwest Monsoon 2020'.

Key Highlights of the Report

- The seasonal (June-September) rainfall over the country as a whole was 109% of its Long Period Average (LPA) in 2020.
- It was the third highest after 112% of LPA in 1994 and 110 % of LPA in 2019.
- Seasonal rainfalls over Northwest India, Central India, South Peninsula and Northeast (NE) India were 84%, 115%, 130% and 106% of their respective LPA.
- Southwest monsoon current reached south Andaman Sea and Nicobar Islands on 17th May 2020 (5 days ahead of its normal date).
- During the season, one Severe Cyclonic Storm "NISARGA" formed during 1st to 4th June.
- This year also witnessed absence of monsoon depression during the season.
- The southwest monsoon 2020 outperformed many recent seasons and ended the decade with one of the best performance.

Long Period Average

- IMD brands the monsoon as 'normal' or 'deficient' based on how it fares against its benchmark Long Period Average (LPA).
- LPA is the average rainfall received by the country as a whole during the south-west monsoon, for a 50-year period.
- The current LPA is 89 cm, based on the average rainfall over years 1951 and 2000. This acts as a benchmark against which the rainfall in any monsoon season is measured.

Monsoon Rainfall 2020	
East & Northeast India	+6%
Northwest India	-16%
Central India	+15%
South Peninsula	+29%

IMD maintains five rainfall distribution categories on an all-India scale. These are:

1. **Normal or Near Normal:** When per cent departure of actual rainfall is +/-10% of LPA, that is, between 96-104% of LPA
2. **Below normal:** When departure of actual rainfall is less than 10% of LPA, that is 90-96% of LPA
3. **Above normal:** When actual rainfall is 104-110% of LPA
4. **Deficient:** When departure of actual rainfall is less than 90% of LPA
5. **Excess:** When departure of actual rainfall is more than 110% of LPA

Note: Read about the mechanism of Monsoon from NCERT

Context

- Recently, IMD issued a Report on the climate of India during 2020.

Key findings of the Report

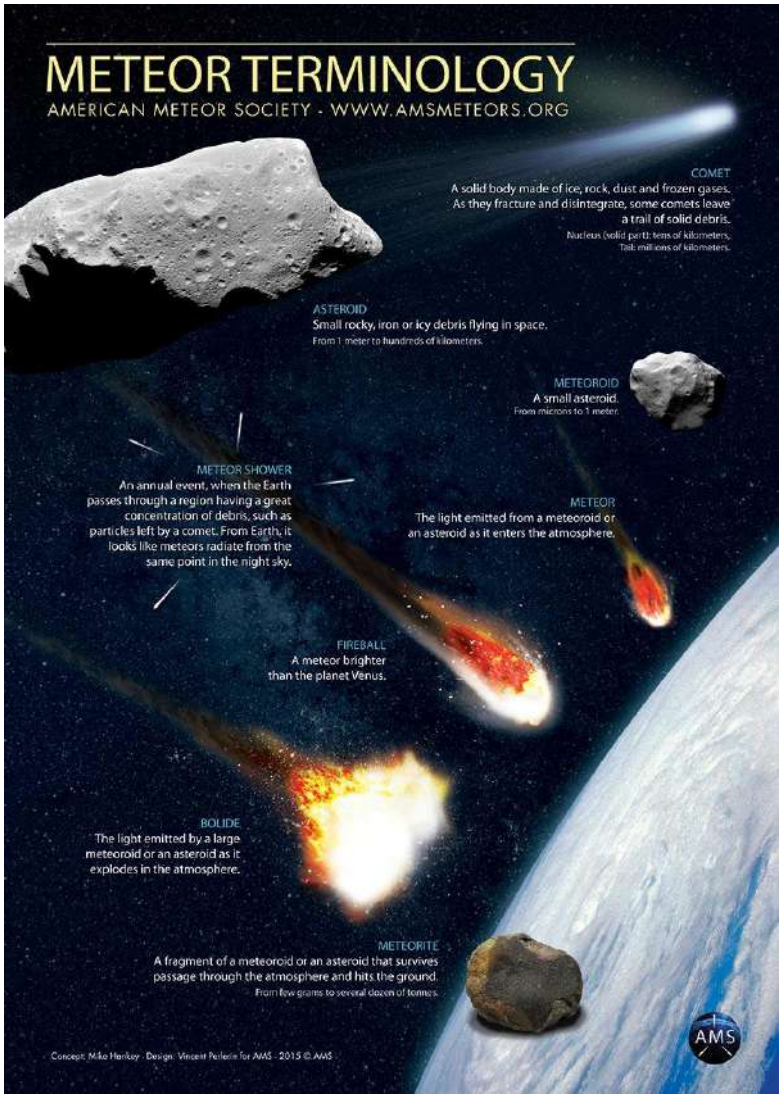
- 2020, was the **eighth warmest year on record** since nation-wide records commenced in 1901.
- The **annual mean land surface air temperature** averaged over the country was **+0.29 degree C above normal** (based on data between 1981-2010).
- The **highest warming was observed over India in 2016** when the mean land surface temperature was +0.71 degree C above normal.
- The mean **temperature during winter was above normal +0.14 degree C.**
- India's warming was however significantly lower than the global average.
- The **global mean surface temperature** anomaly during 2020 **is +1.2 degree C.**
- The **annual rainfall** over the country as a whole was **109 per cent of its Long Period Average** (LPA) calculated for the period of 1961-2010.
- 12 out of 15 warmest years were during the recent fifteen years (2006-2020).
- The past decade **(2011-2020) was also the warmest decade** on record.
- Averaged annual mean temperature during 1901-2020 showed an increasing trend of 0.62 degrees C in 100 years.
- In 2020, the **mean monthly temperatures were warmer than the normal** during all the months except March and June.
- 2020 was one of the warmest years despite La Niña with cool waters in the east Pacific.
- La Niñas typically has a cooling effect on global temperatures, but this is now offset by global warming due to greenhouse gas emissions.
- As a result, La Niña years now are warmer than years with El Niño events of the past.
- The fact that there was a rise of over 1 degrees C in global mean surface temperature over pre-industrial levels in a La Nina year is a sign of global warming.
- India experienced some extreme climate events like extremely heavy rainfall, floods, landslides, thunderstorm, lightning, cold waves which killed hundreds of people.
- **Bihar and Uttar Pradesh were the most adversely affected** states during the year wherein more than 350 people died from each state due to thunderstorm, lightning and cold wave.
- In 2020 5 cyclones formed over the North Indian Ocean. These were super cyclonic storm Amphan, very severe cyclonic storms Nivar and Gati (both over the Arabian Sea), severe cyclonic storm Nisarga and cyclonic storm Burevi.
- **Amphan is the costliest tropical cyclone on record** in the North Indian Ocean with economic losses to the tune of approximately US $14 billion.

Note: Read about El Nino and La Nina in detail in December 2020 edition of THE IAS GAZETTE: https://www.iasgyan.in/ig-uploads/pdf/DECEMBER.pdf

ASTEROIDS

Context

- In the recent past NASA cautioned about six asteroids to pass near the earth.
- These are
  - ✓ 2021 AC
  - ✓ 2016 CO247
  - ✓ 2021 AJ 11:38
  - ✓ 2018 KP1
  - ✓ 2008 AF4
  - ✓ 2021 AU


METEOR TERMINOLOGY
AMERICAN METEOR SOCIETY - WWW.AMSMETEORS.ORG
COMET
A solid body made of ice, rock, dust and frozen gases. As they fracture and disintegrate, some comets leave a trail of solid debris.
Nucleus (solid part): tens of kilometers. Tail: millions of kilometers.
ASTEROID
Small rocky, iron or icy debris flying in space.
From 1 meter to hundreds of kilometers.
METEOROID
A small asteroid.
From microns to 1 meter.
METEOR SHOWER
An annual event, when the Earth passes through a region having a great concentration of debris, such as particles left by a comet. From Earth, it looks like meteors radiate from the same point in the night sky.
METEOR
The light emitted from a meteoroid or an asteroid as it enters the atmosphere.
FIREBALL
A meteor brighter than the planet Venus.
BOLIDE
The light emitted by a large meteoroid or an asteroid as it explodes in the atmosphere.
METEORITE
A fragment of a meteoroid or an asteroid that survives passage through the atmosphere and hits the ground.
From few grams to several dozen of tonnes.
AMS
Concept: Mike Hankey · Design: Vincent Perlerin for AMS · 2015 © AMS

ASTEROIDS
WHAT ARE THEY?
Asteroids are SMALL ROCKY or METALLIC BODIES that orbit the Sun
They can range in size
less than 1 cm
hundreds of km
Some asteroids have THEIR OWN MOONS
Asteroids are LEFTOVERS from the formation of our solar system 4.6 BILLION YEARS AGO
WHAT ARE THEY MADE OF?
They are made of rock, metals, and other materials. Some even contain water!
3 COMMON TYPES
CARBON-RICH
- dark
- contain carbon
- look like charcoal
ROCKY
- stony texture
- contain silicate materials and iron
- look like dark rocks
METALLIC
- shiny appearance
- contain nickel and iron
- look like steel
WHERE ARE THEY?
MERCURY
VENUS
EARTH
MARS
JUPITER
NEAR-EARTH ASTEROIDS (150 million km from the Sun)
Most asteroids are located in the MAIN BELT (330 to 480 million km from the Sun)
WHY DO WE STUDY THEM?
To learn what TYPES OF MATERIALS existed billions of years ago in order to understand the FORMATION and EVOLUTION of the planets
Some of the material trapped inside might be the BUILDING BLOCKS OF LIFE

Context

- The High Court of Karnataka has struck down the new rule enacted to collect Rs 70 per tonne from persons who transport processed building stone materials such as aggregates or jelly, size stones, boulders, M-sand, and other varieties from other States with a valid permit.

MSand

- M Sand is artificial sand made from crushing of rock or granite for construction purposes in cement or concrete.
- It is used as a substitute for river sand.
- M sand differs from natural river sand in its physical and mineralogical properties.

Manufacturing

- M-Sand is manufactured in a three-stage process:

1. **Crushing:**
   Quarry and Rocks stones are crushed at jaw crushers, cone crushers, and vertical shaft impact crushers, respectively leading into the formation of angular and cubical fine aggregate particles.
2. **Screening:**
   Screening ensures this material is properly graded that's similar to river sand.
3. **Washing:**
   Washing removes all the micro-fine particles. Also, fine aggregates for concrete and plaster sand are also formed.

Advantages of M Sand

- It is highly cohesive and compressive in strength.
- It does not have the presence of impurities such as clay, dust and silt coatings. This helps in producing better quality concrete.
- M-sand produced under strict industrial control and manufactured to meet BIS standards has proven to produce stronger concrete compared to river sand.
- A nearly 30 % increase in masonry strength is obtained with the use of manufactured sand.
- It requires a lower water-cement ratio if the mortar is mixed with manufactured sand, which also results in better characteristics in the hardened state.
- It does not contain organic and soluble compound that affects the setting time and properties of cement, thus the required strength of concrete can be maintained.
- Manufacturing sand also eliminates the environmental impact that occurred due to the lifting of natural sand from the river bed.

Disadvantages of M-sand

- Improper crushing of manufacturing sand may lead to angular and flaky particles that are not suitable for concrete production, both technically and economically.
- Also, an adequate set up of crusher may not be available in some parts of the county like West Bengal, as it costs higher than river sand.
- For high-grade pumpable concrete in high-rise buildings, the requirement of cement is higher than the river sand, which may not be cost-effective

Difference between M Sand and River Sand

Sr.No.	M-Sand	River Sand
1	M-Sand manufactured in a factory	This naturally available on river banks
2	The source of Crushed sand is a quarry. It is manufactured by quarry stones, Crushing rocks, or larger aggregate pieces into sand size particles in a factory or quarry.	This is naturally available and extracted from the riverbanks or river beds.
3	The shape of Crushed sand is angular and cubical and has a rough texture and hence, better for concrete.	The shape of natural sand is rounded and has a smooth surface.
4	No moisture content.	Moisture is generally present between the particles. Hence, it affects the assumptions of concrete mix design and quality of concrete.
5	This sand highly recommended for Reinforced concrete purposes and brick/block works.	River sand is recommended for Reinforced concrete, plastering and brick/blockwork.
6	Particle passing 75 microns: Up to 15%	Particle passing 75 microns: Up to 3%
7	M-sand specific gravity is approximate 2.73 (Depends on parent rock.)	River sand specific gravity is approximate 2.65 (Depends on rocks in the catchment area.)
8	M-sand dry density of 1.75 kg/m^3	Naturally Sand dry density of 1.44 kg/m^3
9	M-sand is manufactured to conform to zone II.	This sand mostly conforms to zone II and zone III
10	There is less adulteration.	There is a high probability of adulteration because of acute shortage. Natural sand adulteration with saline sea sand is common in coastal areas.
11	M-sand less damage to the environment as compared to natural sand.	This river sand is harmful to the environment. It reduces the groundwater level and rivers water gets dried up.

M-Sand and River Sand

IS Sieve	M-Sand % Age Passing	River Sand % Age Passing	% Age passing for single Normal Sand 115 383 – 19701 Zone II
4.75 mm	99.75	99.25	100 to 90
2.36 mm	78.25	93.50	100 to 75
1.18 mm	52.00	48.00	90 to 55
600 microns	38.00	21.00	59 to 35
300 microns	21.00	4.00	30 to 08
150 microns	5.00	0.05	10 to 0

Impact of Depletion of River Sand

Impacts on	Description
Biodiversity	Impacts on related ecosystems (for example fisheries)
Land losses	Both inland and coastal through erosion
Hydrological function	Change in water flows, flood regulation and marine currents
Water supply	Through lowering of the water table and pollution
Infrastructures	Damage to bridges, river embankments and coastal infrastructures
Climate	Directly through transport emissions, indirectly through cement production
Landscape	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
Extreme events	Decline of protection against extreme events (flood, drought, storm surge)

M Sand in India

- All the four southern statesAndhra Pradesh, Tamil Nadu, Telangana, Karnataka have recognized it as a substitute for river sand, and have been promoting its use over the years. Gujarat also manufactures M-sand.
- Karnataka has been the most pro-active of the lot. In fact, the 2011 sand policy encourages establishment of M-sand units by giving it top priority while allotting quarries. The State has 164 M-sand manufacturing units that produces 20 million tonnes of M sand per annum.

Hurdles in Using Alternative Sands

Manufactured sand is being used in India, but is still not popular due to the following reasons:

- **Lack of standard:** In India there are no details and specifications, especially regarding gradation, properties like void content, sand equivalent, limits of deleterious materials, and on proper mix proportions.
- **No government support:** Besides the lack of government support, there are malpractices in every stage of construction, and lack of an appropriate policy to formulate and implement proper management of waste and use of alternatives. This is because even the government buildings are being built with river sand. Although, there are guidelines for sustainable mining, illegal sand mining continues to be prevalent.
- **Limited awareness:** Lack of awareness of the possibilities of production and use of alternative sand in construction is a major barrier. There is a need to generate experimental data on different types of alternative sands and on their properties so that they can be recognized by the government and private construction sectors.
- **Absence of suitable technology:** Very few commercially viable and accepted technologies for production of alternative sands are present. Knowledge to tackle feedstock storage and transportation for proper quality of the sands is still lacking. There are no proper testing equipment and lab facilities to ensure the quality of alternative sands. Also, presence of quarry dust and inspection of production units is not undertaken.
- **Hesitancy of people:** Limited knowledge has made people reluctant towards using alternative sands. This reluctance is more amongst the government officials and builders regarding the sands' effect on quality.

Recommendations

Generating Awareness

- There is a pressing need to create awareness of the problems related to environmental degradation and use of alternative sands.
- This can be brought about through the media, encouragement from different organizations, through seminars and conferences.

Government Initiative

- Engagement of organizations could generate extensive experimental data.
- This data in turn would help in creating guidelines and codes.
- Government organizations should set an example of using alternative sand in buildings, bridges, highways, skyscrapers, etc. to bring confidence in the public at large.

Initiative by Construction Industry

- The construction industry can articulate guidelines to inspire use of alternative sand in projects and create a market mandate.
- An association of builders in consultation with experts and scientists can start work to promote its usage.
- Likewise, contractors and builders can endorse the sands in their client buildings.

Initiative by Research institutions

- Research and academic institutions can play a vital role in the development of evaluation methods and specifications for use of alternative sands in construction.

Media

- The media can sensitize the public by highlighting the importance of conserving our natural resources.

VANADIUM RESERVES IN INDIA

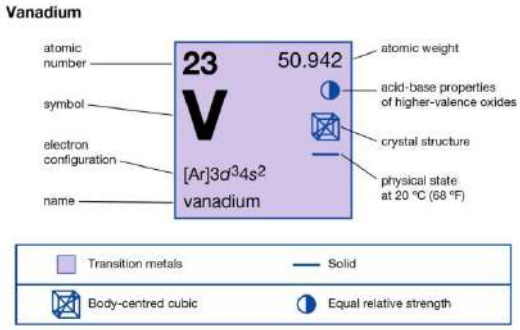
GS-I GEOGRAPHY

Context

- According to the GSI, Arunachal Pradesh is likely to become India's prime producer of Vanadium.

Vanadium

- Vanadium in its pure form is a soft, grey and ductile element primarily derived from mined iron ore, carbonaceous shale or phyllites and steel slag.



Key Properties

Pure vanadium is:

- ✓ Bright white in appearance
- ✓ Soft
- ✓ Ductile
- ✓ Has good structural strength
- ✓ Possesses good corrosion resistance to alkalis, sulphuric acid, hydrochloric acid and salt water
- ✓ It oxidizes readily at temperatures greater then 660°C
- ✓ Has a low fission neutron cross section
- It is recovered as a by-product from the slag collected from the processing of vanadiferous magnetite ores (iron ore).

Applications

- The most important use of vanadium is **as an additive for steel**, with approximately 80% of vanadium going into ferrovanadium, a steel additive.
- It is used for the production of rust resistant, spring and high speed tool steels.
- It is also added to steels to stabilize carbides.
- Vanadium foil is also used to bond titanium to steel.
- Due to its low fission neutron cross section vanadium is also used **in nuclear applications.**
- Mixed with aluminum in titanium alloys is used in jet engines and high speed air-frames, and steel alloys are used in axles, crankshafts, gears and other critical components.
- Vanadium oxide (V2O5) is used as a catalyst in manufacturing sulfuric acid and maleic anhydride and in making ceramics.
- It is added to glass to produce green or blue tint. Glass coated with vanadium dioxide (VO2) can block infrared radiation at some specific temperature.
- Vanadium compounds are also used in a number of applications such as:
  - ✓ Vanadium pentoxide as a catalyst in the ceramics industry

- ✓ As a mordent in the printing and dyeing of fabrics
- ✓ In the manufacture of aniline black

Vanadium in the environment

- Vanadium is **never found unbound in nature.**
- Vanadium occurs in about 65 different minerals among which are patronite, vanadinite, carnotite and bauxite.
- Vanadium occurs in carbon containing deposits such as crude oil, coal, oil shale and tar sands.
- Various vanadium ores are known but none is mined as such for the metal, which is generally obtained as a byproducts of other ores.
- The largest resources of vanadium are to be found in China followed by South Africa and Russia.
- Watering is an important way in which vanadium is redistributed around the environment because venedates are generally very soluble.
- Vanadium is abundant in most soils, in variable amounts, and it is taken up by plants at levels that reflect its availability.
- In biology, a vanadium atom is an essential component of some enzymes, particularly the vanadium nitrogenase used by some nitrogen-fixing microorganisms.

Effects of vanadium on the environment

- Vanadium can be found in the environment in algae, plants, invertebrates, fishes and many other species.
- In mussels and crabs vanadium strongly bioaccumulates, which can lead to concentrations of about 105 to 106 times greater than the concentrations that are found in seawater.
- Vanadium causes the inhibition of certain enzymes with animals, which has several neurological effects.
- Next to the neurological effects vanadium can cause breathing disorders, paralyses and negative effects on the liver and kidneys.
- Vanadium can cause harm to the reproductive system of male animals, and that it accumulates in the female placenta.
- Vanadium can cause DNA alteration in some cases, but it cannot cause cancer with animals.

Vanadium and India

- India is a significant consumer of vanadium but is not a primary producer of the strategic metal.
- India consumed 4% of about 84,000 metric tonnes of vanadium produced across the globe in 2017.
- China, which produces 57% of the world's vanadium, consumed 44% of the metal.
- According to the Indian Bureau of Mines (2018 database), the total estimated reserves or resources of vanadium ore is 24.63 million tonnes, with an estimated V2O5 content of 64,594 tonnes.

Conclusion

- Vanadium increases the fuel-efficiency in automotive and aviation industries due to its high strength-to-weight ratio.
- Also, Vanadium forms the integral part of vanadium redox batteries that have the least ecological impact in energy storage.
- The global demand for vanadium has been skyrocketing but there was a deficit of 17,300 metric tonnes between demand and supply in 2017.
- Vanadium mineralisation in Arunachal Pradesh is geologically similar to the "stone coal" vanadium deposits of China.
- The vanadium find in Arunachal Pradesh could help boost the local and national economy.

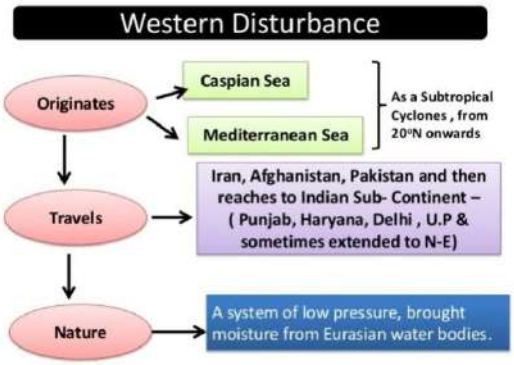
WESTERN DISTURBANCES

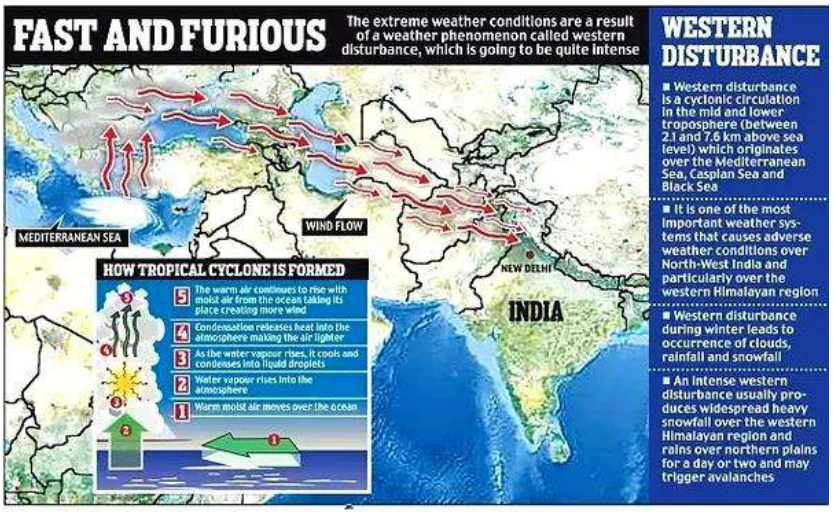
Context

- Two back-to-back western disturbances are likely to bring snow to the western Himalayas and rain or hail to the north-western plains – Weather Department.

What is western disturbance?

- Western disturbance (WD) is an extra-tropical storm which originates in the Mediterranean region.
- The disturbance travels from the "western" to the eastern direction.
- Disturbance means an area of "disturbed" or reduced air pressure. Equilibrium exists in nature due to which the air in a region tries to normalize its pressure.
- In the term "extra-tropical storm", storm refers to low pressure. "Extra-tropical" means outside the tropics. As the WD originates outside the tropical region, the word "extra-tropical" has been associated with them.
- A WD is associated with rainfall, snowfall and fog in northern India.
- Upon its arrival in Pakistan and northern India, clouds along with rain and snow also arrive.
- The moisture which WDs carry with them comes from the Mediterranean Sea and/or from the Atlantic Ocean.


Western Disturbance
Originates
Caspian Sea
Mediterranean Sea
As a Subtropical Cyclones , from 20°N onwards
Travels
Iran, Afghanistan, Pakistan and then reaches to Indian Sub- Continent – (Punjab, Haryana, Delhi , U.P & sometimes extended to N-E)
Nature
A system of low pressure, brought moisture from Eurasian water bodies.


FAST AND FURIOUS
The extreme weather conditions are a result of a weather phenomenon called western disturbance, which is going to be quite intense
WESTERN DISTURBANCE
Western disturbance is a cyclonic circulation in the mid and lower troposphere (between 2.1 and 7.6 km above sea level) which originates over the Mediterranean Sea, Caspian Sea and Black Sea
It is one of the most important weather systems that causes adverse weather conditions over North-West India and particularly over the western Himalayan region
Western disturbance during winter leads to occurrence of clouds, rainfall and snowfall
An intense western disturbance usually produces widespread heavy snowfall over the western Himalayan region and rains over northern plains for a day or two and may trigger avalanches
MEDITERRANEAN SEA
WIND FLOW
NEW DELHI
INDIA
HOW TROPICAL CYCLONE IS FORMED
5 The warm air continues to rise with moist air from the ocean taking its place creating more wind
4 Condensation releases heat into the atmosphere making the air lighter
3 As the water vapour rises, it cools and condenses into liquid droplets
2 Water vapour rises into the atmosphere
1 Warm moist air moves over the ocean

Impact of Western Disturbance on the Indian Sub-continent

- Western Disturbance plays important role in bringing moderate to heavy rain in low-lying areas and heavy snow to mountainous areas of the Indian Subcontinent especially in winter.
- This disturbance is usually associated with cloudy sky, higher night temperatures and unusual rain.
- This precipitation has great importance in agriculture, particularly for the Rabi crops.
- Wheat among them is one of the most important crops, which helps to meet India's food security.
- Excessive precipitation due to this disturbance can cause crop damage, landslides, floods and avalanches.
- Over the Indo-Gangetic plains, it occasionally bring cold wave conditions and dense fog.
- These conditions remain stable until disturbed by another western disturbance.
- When western disturbances move across northwest India before the onset of monsoon, a temporary advancement of monsoon current appears over the region.

Tropical Cyclone Vs Extra-tropical Cyclone

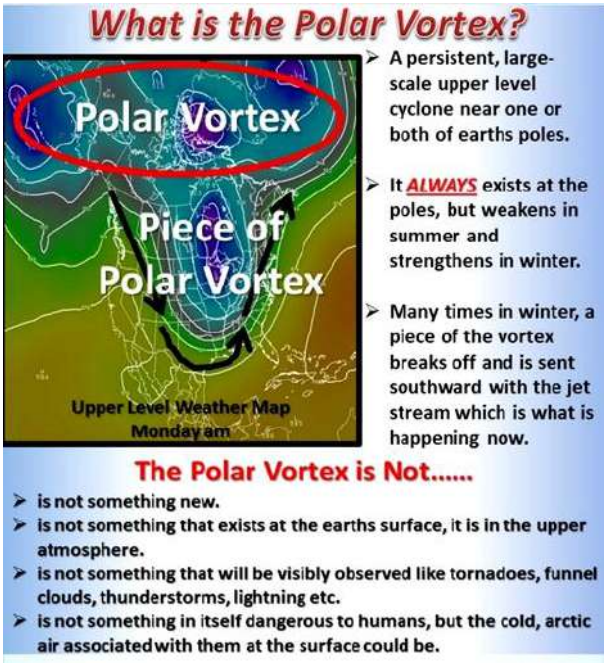
Basis	Tropical Cyclone	Extra-tropical Cyclone
Characteristics	A low-pressure centre, a closed low-level atmospheric circulation, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain.	A large scale low-pressure weather systems that occur in the middle latitudes of the Earth.
Formation	It gets intensified over warm tropical oceans and required temperature higher than 27° C, presence of the Coriolis force, small variations in the vertical wind speed, a pre-existing weak low- pressure area or low-level-cyclonic circulation and upper divergent above the sea level system.	It gets intensified any part of extra tropical regions of the Earth (usually between 30° and 60° latitude from the equator), either through cyclogenesis or extra tropical transition.
Movement	It moves from east to west.	It moves from west to east.
Nature of Cyclone	Violent storms	Static, not violent
Type	Warm Core	Cold Core

POLAR VORTEX

GS-I GEOGRAPHY

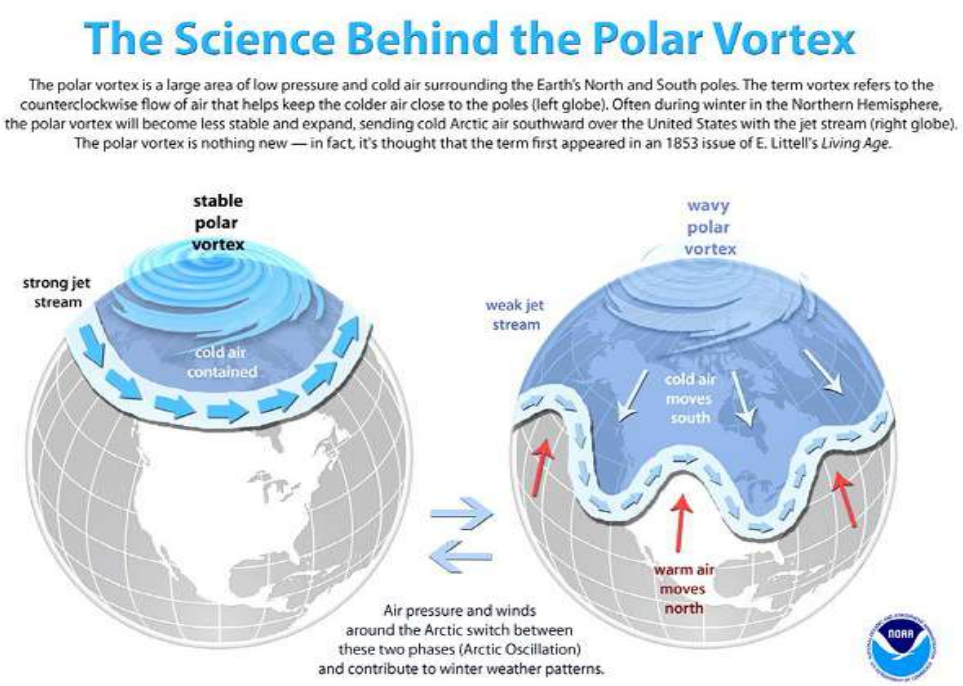
Context

- Meteorologists have predicted that the polar vortex, which is splitting into two and swirling southward, will send the US and European countries into a chilling deep freeze.


What is the Polar Vortex?
Polar Vortex
Piece of Polar Vortex
Upper Level Weather Map Monday am
A persistent, large-scale upper level cyclone near one or both of earths poles.
It ALWAYS exists at the poles, but weakens in summer and strengthens in winter.
Many times in winter, a piece of the vortex breaks off and is sent southward with the jet stream which is what is happening now.
The Polar Vortex is Not.....
is not something new.
is not something that exists at the earths surface, it is in the upper atmosphere.
is not something that will be visibly observed like tornadoes, funnel clouds, thunderstorms, lightning etc.
is not something in itself dangerous to humans, but the cold, arctic air associated with them at the surface could be.

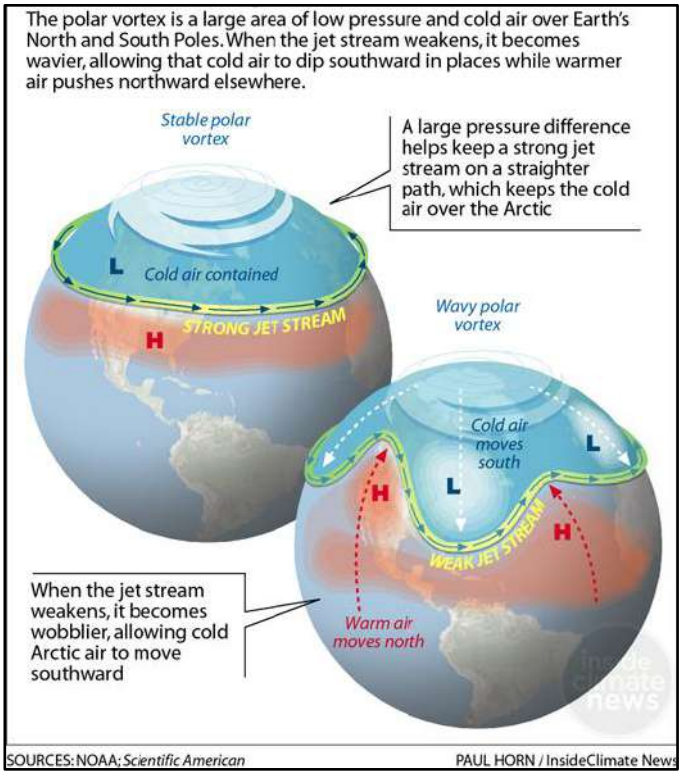
Polar Vortex

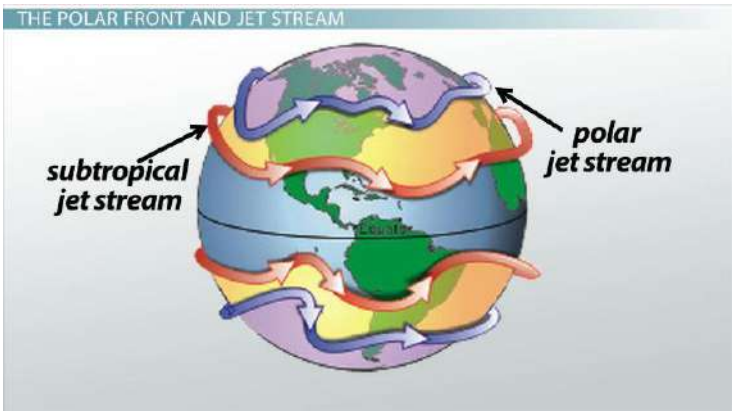
- A polar vortex is a low pressure area—a wide expanse of swirling cold air—that is parked in Polar Regions.
- It ALWAYS exists near the poles, but weakens in summer and strengthens in winter.
- The term "vortex" refers to the counter-clockwise flow of air that helps keep the colder air near the Poles.
- During winter, the polar vortex at the North Pole expands, sending cold air southward. This happens fairly regularly and is often associated with outbreaks of cold temperatures in the United States.


The Science Behind the Polar Vortex
The polar vortex is a large area of low pressure and cold air surrounding the Earth's North and South poles. The term vortex refers to the counterclockwise flow of air that helps keep the colder air close to the poles (left globe). Often during winter in the Northern Hemisphere, the polar vortex will become less stable and expand, sending cold Arctic air southward over the United States with the jet stream (right globe). The polar vortex is nothing new — in fact, it's thought that the term first appeared in an 1853 issue of E. Littell's Living Age.
stable polar vortex
strong jet stream
cold air contained
wavy polar vortex
weak jet stream
cold air moves south
warm air moves north
Air pressure and winds around the Arctic switch between these two phases (Arctic Oscillation) and contribute to winter weather patterns.
NOAA

The polar vortex in the Northern Hemisphere

- The air within the Northern Hemisphere polar vortex is referred to as polar air or Arctic air, depending on temperature, with the Arctic air being the coldest.
- South of the polar vortex, the atmosphere is much warmer, representing sub-tropical air, and, further south, tropical air.
- The boundary between the cold air within the vortex and the warmer air to the south is a region of steep temperature gradients, with temperatures decreasing to the north.
- These sharp temperature gradients give rise to the polar front jet stream, a fairly narrow ribbon of especially fast-moving air, flowing broadly from west to east.
- So, the southern boundary of the polar vortex essentially corresponds to the location of the polar front jet stream.


The polar vortex is a large area of low pressure and cold air over Earth's North and South Poles. When the jet stream weakens, it becomes wavier, allowing that cold air to dip southward in places while warmer air pushes northward elsewhere.
Stable polar vortex
A large pressure difference helps keep a strong jet stream on a straighter path, which keeps the cold air over the Arctic
L
Cold air contained
H
STRONG JET STREAM
Wavy polar vortex
Cold air moves south
L
H
L
H
WEAK JET STREAM
When the jet stream weakens, it becomes wobblier, allowing cold Arctic air to move southward
Warm air moves north
SOURCES: NOAA; Scientific American
PAUL HORN / InsideClimate News



Jet Streams

Jet streams are relatively narrow bands of strong wind in the **upper levels of the atmosphere**. They move at altitudes of about **8 to 15 kilom**eters (5 to 9 miles). The winds blow from **west to east** in jet streams but the flow often shifts to the north and south. Jet streams **follow the boundaries between hot and cold air**.

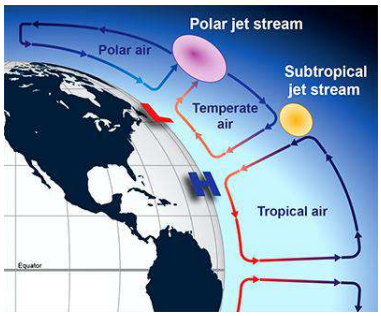
Since these hot and cold air boundaries are most pronounced in winter, jet streams are the **strongest** for both the northern and southern hemisphere **in winters**.

What Causes Jet Streams?

Jet streams form when warm air masses meet cold air masses in the atmosphere. The Sun doesn't heat the whole Earth evenly. That's why areas near the equator are hot and areas near the poles are cold.

So when Earth's warmer air masses meet cooler air masses, the warmer air rises up higher in the atmosphere while cooler air sinks down to replace the warm air. This movement creates an air current, or wind. A jet stream is a type of air current that forms high in the atmosphere. Jet Streams are faster in winter when the temperature differences between tropical, temperate, and polar air currents are greater.

On Earth there are four main jet streams: two polar jet streams and two subtropical jet streams. They form in the atmosphere where warm air masses meet cool air masses.



How Do Jet Streams Affect Air Travel?

Jet streams are located about five to nine miles above Earth's surface in the mid to upper troposphere — the layer of Earth's atmosphere where we live and breathe. Airplanes also fly in the mid to upper troposphere. So, if an airplane flies in a powerful jet stream and they are traveling in the same direction, the airplane can get a boost. That's why an airplane flying a route from west to east can generally make the trip faster than an airplane traveling the same route east to west.

Effect on Weather

Jet streams typically move storms and other weather systems from west to east. However, the Jet Stream is often distorted with northward bulges and southward plunges. Meteorologists call the northward bulge a ridge and a southward plunge a trough.

On rare occasions, usually during major winter storms such as a blizzard, the jet stream may bend so much that it flows from east to west over short distances. When this happens, the jet stream may break off (close off) from the main branch and spin counterclockwise in a large horizontal circle.

South of the jet stream, the air is usually warmer than average. When there is a large northward bulge (ridge) in the jet stream during the winter, heavy coats and wool hats may not be needed. When this happens in the summer, millions of people may face a sweltering heat wave.

Jet Stream and Indian Monsoon

The Sub-Tropical Jet stream plays a significant role in both hindering the monsoon winds by causing sudden bursts and breaks in the Monsoon as well as in quick onset of Indian monsoons.

The easterly jet stream steers the tropical depressions into India. These depressions play a critical role in distribution of monsoon rainfall over the Indian subcontinent.

How is the jet stream changing?

Research shows that over the past several decades, the jet stream has weakened. There's also evidence that as it wobbles, it can get stuck out of balance, which can lead to more persistent weather extremes, including heat waves, cold snaps, droughts and flooding.

Role of warming Arctic

Melting sea ice speeds up the warming of the Arctic because open water absorbs more heat. And that, in turn, leads to even more sea ice melting. In that vicious cycle, Arctic temperatures are rising twice as fast as the global average. And that's reducing the temperature contrast that's one of the jet stream's main engines, Francis said.

More extreme and persistent swings in the jet stream may also be shaping a North American winter weather pattern that's been common the past few years—a warm and dry West, especially California, and cold waves in the Eastern U.S.

Jet Stream and Arctic oscillation

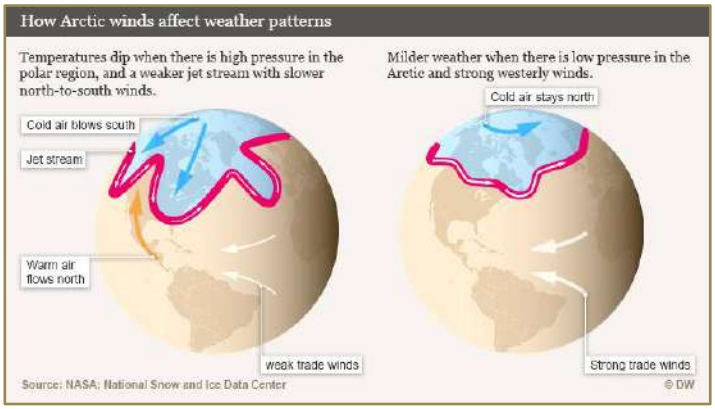
- The configuration of the polar vortex is linked to the phase of the Arctic Oscillation, a seesaw pattern of rising and falling atmospheric pressure over the Arctic and the middle latitudes.
- When the Arctic Oscillation switches to a positive phase, the polar vortex tends to extend toward the pole.
- When the Arctic Oscillation switches to a negative phase, it tends to expand further to the south and become more wavy, meaning the long wave ridges and troughs are more pronounced.

How the Polar Vortex Affects Regional Temperatures

- The polar vortex is a fast flowing stream of air that circles the North Pole during the winter months in the upper atmosphere, known as the stratosphere.
- Often when the polar vortex is strong, temperatures are mild in the mid-latitudes across the Eastern US and Northern Eurasia; and when the vortex is weak, temperatures tend to be cold across the Eastern US and northern Europe and Asia.

Strong Polar Vortex

- Strong is the more common state of the polar vortex.
- When the polar vortex is strong, this creates strong low pressure in the Arctic region.
- Because of the pressure difference between the Arctic and mid-latitudes, air flows into low pressure and these confines the cold air to high latitudes closer to the Arctic.
- Therefore it is often mild across the Eastern US, Europe and East Asia during winters when the polar vortex is strong.

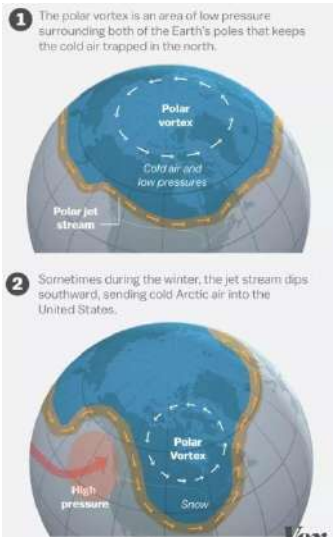

How Arctic winds affect weather patterns
Temperatures dip when there is high pressure in the polar region, and a weaker jet stream with slower north-to-south winds.
Cold air blows south
Jet stream
Warm air flows north
weak trade winds
Milder weather when there is low pressure in the Arctic and strong westerly winds.
Cold air stays north
Strong trade winds
Source: NASA; National Snow and Ice Data Center
© DW

- During strong polar vortex, the air flow is fast and in a direction from west to east.
- Low pressure in the Arctic region is referred to as the positive phase of the Arctic Oscillation (AO), which is also known as the North Atlantic Oscillation (NAO).

Weak Polar Vortex

- When the polar vortex is weak, the flow of air is weaker and meanders north and south (rather than west to east).
- This allows a redistribution of air masses where cold air from the Arctic spills into the mid-latitudes and warm air from the subtropics is carried into the Arctic.

- This mixing of air masses also favors more storms and snow in the mid-latitudes.
- During a weak polar vortex, high pressure occurs in the Arctic region and is referred to as the negative phase of the Arctic Oscillation (AO).
- Air flows away from the high pressure Arctic. The north to south direction of the polar vortex carries cold Arctic air into the mid-latitudes of Eastern US, Europe and East Asia.
- Therefore it is cold across the Eastern US, Europe and East Asia during winters when the polar vortex is weak.

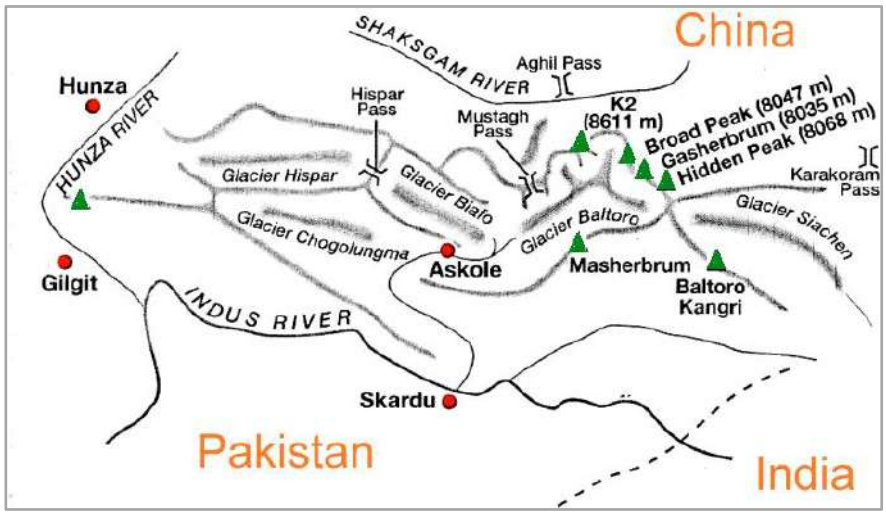

1 The polar vortex is an area of low pressure surrounding both of the Earth's poles that keeps the cold air trapped in the north.
Polar vortex
Cold air and low pressures
Polar jet stream
2 Sometimes during the winter, the jet stream dips southward, sending cold Arctic air into the United States.
Polar Vortex
High pressure
Snow

K2

GS-I GEOGRAPHY

Context

- Recently, a group of Nepali mountaineers became the first climbers to scale the K2 peak in winter.



About K2

- At 8,611 metersK2, also called Mount Godwin Austen, Dapsang or Chogori, is the **world's second highest peak** second only to Mount Everest (8,848 m).
- K2 is **located in the Karakoram Range** and lies between Uygur Autonomous Region of Xinjiang, China, and Gilgit-Baltistan portion of Kashmir.
- It rises from its base at about 15,000 feet on the Godwin Austen Glacier, a tributary of the Baltoro Glacier.

Significance of the recent ascent

- K2 is prone to avalanches, marked by forbidding temperatures and fierce winds.
- It is so formidable that it is called the 'Savage Mountain'.
- For every four climbers who reach its summit, one dies.
- It is one of the world's most difficult mountains to climb.
- Thus, Scaling K2 in winter was perhaps the last great prize of high-altitude mountaineering.

LITHIUM EXPLORATION

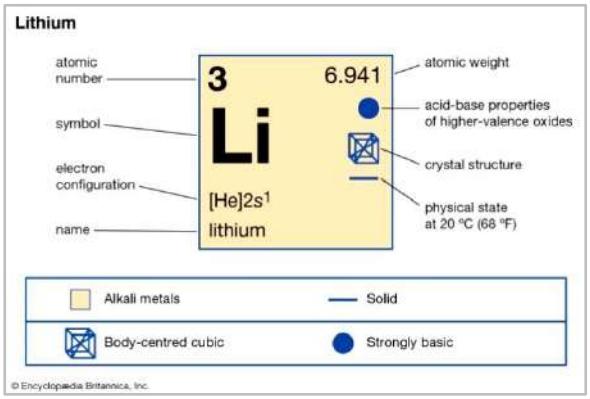
GS-I GEOGRAPHY

Context

- The Department of Atomic Energy, Government of India has discovered 1600kg Lithium in Mandla district of Karnataka.

Lithium

- Referred to as "white gold" – Lithium metal is soft, white, and lustrous—and several of its alloys and compounds are produced on an industrial scale.



Appearance

- A soft, silvery metal.
- It has the lowest density of all metals.
- It reacts vigorously with water.

Uses

- **Electronics:** The most important use of lithium is in rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles.
- **Glass and Grease:** Lithium-ion batteries are alsoused in ceramics and glass, lubricating greases, polymer production, and air treatment.
- **Medical:** Lithium is also used in some non-rechargeable batteries for things like heart pacemakers, toys and clocks. It is also used in psychiatric medications and in dental imprints.Lithium carbonate is used in drugs to treat manic depression.
- **Nuclear Weapons:** The lighter of two lithium isotopes is used in the production of Tritium, a key component of nuclear weapons.
- **Infrastructure:** Lithium metal is **made into alloys with aluminium and magnesium**, improving their strength and making them lighter. Aluminum-lithium alloys are used in aircraft, bicycle frames and high-speed trains.
- **Fuel:** Lithium hydride is used as a means of storing hydrogen for use as a fuel.
- **Other:** A magnesium-lithium alloy is used for armour plating. Lithium chloride is one of the most hygroscopic materials known, and is used in air conditioning and industrial drying systems (as is lithium bromide). Lithium stearate is used as an all-purpose and high-temperature lubricant.

Biological role

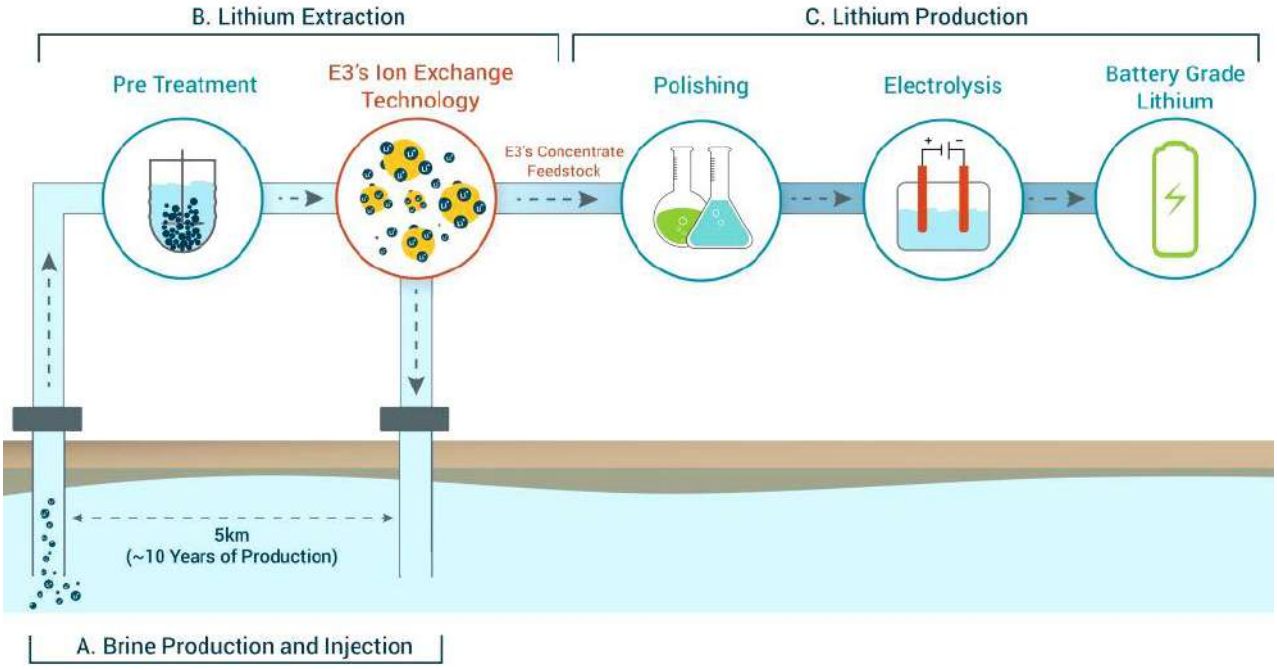
- Lithium has no known biological role. It is toxic, except in very small doses.

Natural abundance

- Lithium **does not occur as the metal in nature,** but is found combined in small amounts in nearly all igneous rocks and in the waters of many mineral springs.
- Spodumene, petalite, lepidolite, and amblygonite are the more important minerals containing lithium.
- Most lithium is currently produced in Chile, from brines that yield lithium carbonate when treated with sodium carbonate.
- The metal is produced by the electrolysis of molten lithium chloride and potassium chloride.

Lithium Production in the world

- According to US Geological Survey (USGS), global lithium production in 2019 stood at 77,000 tonnes.
- Australia, Chile, China and Argentina are the world's top four lithium-producing countries.
- Australia is by far the world's top producer of lithium, with an output of 42,000 tonnes in 2019.



Lithium Triangle

- The Lithium Triangle is a region of the Andes rich in lithium reserves around the borders of **Argentina, Bolivia and Chile.**
- The lithium in the triangle is concentrated in various salt pans that exist along the Atacama Desert and neighboring arid areas.
- The area is thought to hold around 54% of the world's lithium reserves.
- The Indian Navy has shown interest in the Lithium Triangle as lithium will be required on Li-ION batteries that are planned to be fitted in future submarines.

Regarding the Recent finds in India

- As of now, India currently imports all its lithium needs.
- The find in Mandya, Karnataka is extremely small in quantitative terms, but it marks some initial success in the attempt to domestically mine Lithium.
- The Marlagalla-Allapatna area, along the Nagamangala Schist Belt, which exposes mineralized complex pegmatites (igneous rocks), is seen as among the most promising geological domains for potential exploration for lithium and other rare metals.

Significance of domestic exploration

- In the coming future, battery manufacturing is expected to accelerate over the coming years, particularly as electric vehicles become more prevalent.
- Thus, analysts expect worldwide demand for Lithium will more than double by 2024.
- However, as of now, India is entirely relying on the import of lithium-ion batteries from other countries, and is particularly dependent on China, who has dominated the lithium manufacturing industry.
- It is estimated, that China controls around half of the world's lithium production, thereby relying on its own reserves, as well as imports from South America.
- The new discovery will reduce import dependency and promote make in India, along with Atmanirbhar Bharat in the energy sector.

India's Lithium Story

- India's first Lithium plant has been set up at Gujarat in 2021, where Manikaran Power Limited will invest Rs 1000 crore to set up this refinery. The refinery will use Lithium ore to produce base battery material.
- TATA is working on 100% made in India Li-ion batteries.
- The Indian Space Research Organisation (ISRO) manufactures these batteries, but their quantity is presently limited, and they are severely restricted in use.
- In 2018, Central Electro Chemical Research Institute in Tamil Nadu, in collaboration with RAASI Solar Power Private Limited signed a Memorandum of Agreement for Li-battery operation and technology transfer to India.

Steps has India taken so far

1. Extracting the Metal

- India – whose diplomatic ties with Latin America have historically been rather weak – had high-level visits with all three countries of the lithium triangle in 2019.
- India, through its Khanij Videsh India Limited (KABIL), had signed an agreement with an Argentinian firm to jointly prospect lithium in Argentina.
- The same delegation from KABIL has also visited Bolivia and Chile to explore possibilities of lithium extraction.
- This underlines India's interest in the regions' lithium.
- The visit of President Shri Ram Nath Kovind to Bolivia – which is the first-ever state visit to the country – has resulted in a Memorandum of Understanding for Cooperation in Geology and Mineral Resources.

2. Towards domestic production of lithium-ion batteries

- The Indian government has started to explore domestic production of lithium-ion batteries.
- The government asked states to compete for establishing domestic manufacturing facilities for lithium-ion batteries.
- This led Telangana to announce 200 acres of land available to build a 5 GW lithium-ion battery factory.
- To promote the domestic production, the government has announced an increase in basic customs duty on parts of electric passenger vehicles (from April 2020) and lithium-ion cells (from April 2021).
- India's Manikaran Power and Australia's Neometals company stroke a deal in June 2020, to jointly fund a refinery in Australia to produce battery grade material for electric vehicles
- The domestic exploration push, comes at a time when India has stepped up its economic offensive against China.

Potential Geological domains of Lithium in India

- Brines of Sambhar and Pachpadra in Rajasthan, and Rann of Kachchh in Gujarat.
- The major mica belts in Rajasthan, Bihar, and Andhra Pradesh, and the pegmatite belts in Odisha and Chhattisgarh apart from Karnataka, are the other potential geological domains.

Delay in mapping reserves

- Experts say while India requires lithium for its energy needs, there has been no comprehensive effort to map local reserves of lithium so far.
- India is seen as a late mover in attempts to enter the lithium value chain.
- The discovery is coming at a time when EVs are predicted to be a sector ripe for disruption.
- 2021 is likely to be an inflection point for battery technology – with several potential improvements to the li-ion technology, and alternatives are in advanced stages of commercialization.

Way Ahead

- The growing demand for Lithium in India is driven by the goal of Indian government to become one of the largest electric vehicle markets world over.

- NITI Aayog has set an ambitious target to increase the number of electric vehicles by 30 percent by 2030.
- In line with these goals, it is high time for India to engage in extraction and exploitation of lithium and develop an industry to produce lithium-ion products domestically.

PARADIP PORT

GS-I GEOGRAPHY

Context

- The Cabinet Committee on Economic Affairs has approvedthe project 'Deepening and Optimization of Inner Harbour Facilities at Paradip Port.

Implementation Strategy

- The project would be developed by the selected Concessionaire on BOT basis. However, the Port will provide the Common Supporting Project Infrastructure.

Mandate

- On commissioning of the project, it shall cater to the requirement of coal & limestone imports.
- It will also aid in export of granulated slag & finished steel products considering the large number of steel plants established in the hinterland of Paradip Port.
- The project shall also facilitate

(i) de-congestion of the Port,
(ii) reduce Sea freight making coal imports cheaper, and
(iii) boost the industrial economy in the hinterland of the port leading to creation of job opportunities.

Paradip Port

- Paradip Port is a natural, deep-water port on the East coast of India in Jagatsinghpur district of Odisha.
- It is situated at confluence of the Mahanadi River and the Bay of Bengal.
- It is situated 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam.
- The port is administered by the Paradip Port Trust (PPT), an autonomous corporation wholly owned by the Government of India.

Different Models of PPP

- PPP is a mode of providing public infrastructure and services by Government in partnership with private sector. It is a long term arrangement between Government and private sector entity for provision of public utilities and services.

a. **Build Operate and Transfer (BOT):** This is the simple and conventional PPP model where the private partner is responsible to design, build, operate (during the contracted period) and transfer back the facility to the public sector. Role of the private sector partner is to bring the finance for the project and take the responsibility to construct and maintain it. In return, the public sector will allow it to collect revenue from the users. The national highway projects contracted out by NHAI under PPP mode is a major example for the BOT model.

b. **Build-Own-Operate (BOO):** This is a variant of the BOT and the difference is that the ownership of the newly built facility will rest with the private party here.
The public sector partner agrees to 'purchase' the goods and services produced by the project on mutually agreed terms and conditions.

c. **Build-Own-Operate-Transfer (BOOT):** This is also on the lines of BOT. After the negotiated period of time, the infrastructure asset is transferred to the government or to the private operator. This approach has been used for the development of highways and ports.

d. **Build-Operate-Lease-Transfer (BOLT):** In this approach, the government gives a concession to a private entity to build a facility (and possibly design it as well), own the facility, lease the facility to the public sector and then at the end of the lease period transfer the ownership of the facility to the government.
e. **Lease-Develop-Operate (LDO):** Here, the government or the public sector entity retains ownership of the newly created infrastructure facility and receives payments in terms of a lease agreement with the private promoter. This approach is mostly followed in the development of airport facilities.
f. **Rehabilitate-Operate-Transfer (ROT):** Under this approach, the governments/local bodies allow private promoters to rehabilitate and operate a facility during a concession period. After the concession period, the project is transferred back to governments/local bodies.
g. **DBFO (Design, Build, Finance and Operate):** In this model, the private party assumes the entire responsibility for the design, construction, finance, and operate the project for the period of concession.
The private party assumes the entire responsibility for the design, construct, finance, and operate or operate and maintain the project for the period of concession.
h. **Management contract:** Here, the private promoter has the responsibility for a full range of investment, operation and maintenance functions. He has the authority to make daily management decisions under a profit-sharing or fixed-fee arrangement.
i. **Service contract:** This approach is less focused than the management contract. In this approach, the private promoter performs a particular operational or maintenance function for a fee over a specified period of time.

ESTONIA, PARAGUAY AND DOMINICAN REPUBLIC

GS-I GEOGRAPHY

Context

- Recently, the Union Cabinet approved the opening of 3 Indian Missions in Estonia, Paraguay and Dominican Republic in 2021.

Objective

- The objective of our foreign policy is to build a conducive environment for India's growth and development through partnerships with friendly countries.
- There are presently Missions and Posts across the world which serve as conduits of our relations with partner countries.

Significance

- Opening of Indian Missions in these countries will
  - ✓ help expand India's diplomatic footprint,
  - ✓ deepen political relations,
  - ✓ enable growth of bilateral trade,
  - ✓ investment and economic engagements,
  - ✓ facilitate stronger people-to-people contacts,
  - ✓ bolster political outreach in multilateral fora and
  - ✓ help garner support for India's foreign policy objectives.
- Indian mission in these countries will also better assist the Indian community and protect their interests.
- The decision to open these 3 new Indian Missions is a forward-looking step in pursuit of our national priority of growth and development or 'Sabka Saath Sabka Vikas'.
- Enhancement of India's diplomatic presence will, provide market access for Indian companies and bolster Indian exports of goods and services.
- This would have a direct impact in augmenting domestic production and employment in line with our goal of a self-reliant India or 'Atmanirbhar Bharat'.

Estonia

- Estonia is a country on the eastern coast of the Baltic Sea in Northern Europe.
- It is bordered to the north by the Gulf of Finland across from Finland, to the west by the Baltic Sea across from Sweden, to the south by Latvia, and to the east by Lake Peipus and Russia.
- The territory of Estonia consists of the mainland and of 2,222 islands in the Baltic Sea.
- Tallinn is the capital of Estonia.

Paraguay

- Paraguay, is a country in South America.
- It is bordered by Argentina to the south and southwest, Brazil to the east and northeast, and Bolivia to the northwest.
- Although one of only two landlocked countries in South America (the other being Bolivia), the country has coasts, beaches and ports on the Paraguay and Paraná rivers that give exit to the Atlantic Ocean through the Paraná-Paraguay Waterway.

Dominican Republic

- The Dominican Republic is a country located on the island of Hispaniola in the Greater Antilles archipelago of the Caribbean region.
- It occupies the eastern five-eighths of the island, which it shares with Haiti.
- Thus, Hispaniola is one of only two Caribbean islands, along with Saint Martin, that is shared by two sovereign states - Dominican Republic and Haiti.

DOPPLER WEATHER RADARS

GS-I GEOGRAPHY

Context

- Union Ministry for Earth Sciences commissioned two of the ten indigenously built Doppler weather radars which will closely monitor the weather changes over the Himalayas.

About Doppler weather Radar

- Doppler weather radar, is a type of radar used to locate precipitation, calculate its motion, and estimate its type (rain, snow, hail etc.).
- Modern weather radars are mostly pulse-Doppler radars, capable of detecting the motion of rain droplets in addition to the intensity of the precipitation.
- Both types of data can be analyzed to determine the structure of storms and their potential to cause severe weather.

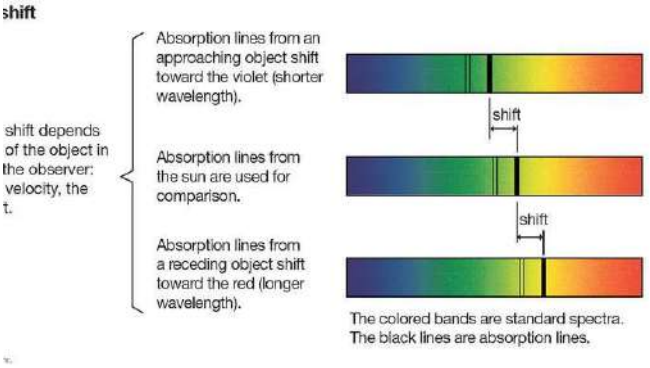
Doppler Effect

- Doppler Effect or Doppler shift is a phenomenon that is observed whenever the source of waves is moving with respect to an observer.
- It occurs due to the apparent difference between the frequencies at which sound or light waves leave a source and that at which they reach an observer, caused by relative motion of the observer and the wave source.

- This phenomenon is used in astronomical measurements, in Mossbauer effect studies, and in radar and modern navigation. It was first described (1842) by Austrian physicist Christian Doppler.

Description

- Doppler Effect works on both light and sound objects.
- For instance, when a sound object moves towards you, the frequency of the sound waves increases, leading to a higher pitch.
- Conversely, if it moves away from you, the frequency of the sound waves decreases and the pitch comes down.
- The drop in pitch of ambulance sirens as they pass by and the shift in red light are common examples of the Doppler Effect.
- Edwin Hubble made the discovery that the universe expands as a consequence of the Doppler Effect.
- It has important applications in the fields of astronomy and space technology.


shift
shift depends of the object in the observer: velocity, the t.
Absorption lines from an approaching object shift toward the violet (shorter wavelength).
Absorption lines from the sun are used for comparison.
Absorption lines from a receding object shift toward the red (longer wavelength).
shift
shift
The colored bands are standard spectra. The black lines are absorption lines.

Applications

- The use of Doppler Effect in astronomy in relation to light waves depends on the fact that the spectra of stars are not constant.
- Different stars exhibit different absorption lines at defined frequencies.
- But Doppler Effect is identifiable only when these absorption lines are away from these defined frequencies.
- There are various applications of Doppler Effect. It is used in:
  1. Sirens
  2. Astronomy
  3. Radars
  4. Medical imaging and blood flow management
  5. Flow management
  6. Velocity profile management
  7. Satellite communication
  8. Audio
  9. Vibration measurement
  10. Speed detection of vehicles

Join the best IAS Institute in Eastern India to crack the Nation's most prestigious service
ADMISSIONS OPEN FOR UPSC CSE 2022
Renowned Faculty Members from Delhi
Highest Success Ratio in Eastern India
Home Learning Program with Advanced LMS
Personal guidance for the journey from Prelims to Interview
Online & Offline Mock Tests
Offline Classes from April 2021*
*(As per Govt. approval)
For detail: 88203 41777, 81007 65577

Context

- In response to a horde of petitions challenging the constitutional validity of the laws passed against unlawful religious conversions by Uttar Pradesh and Uttarakhand, the Supreme Court agreed to hear the pleas.
- It, however, refused to stay the provisions of the laws and issued notices to both state governments on two different petitions who have four weeks to respond before the next hearing.

About the U.P. ordinance

- The preamble to the The Uttar Pradesh Prohibition of Unlawful Conversion of Religion Ordinance indicates what it provides for:
  - Unlawful conversion from one religion to another by coercion, misrepresentation and so on "or by marriage".
- If one f**raudulent or coercive inter-faith marriage** is taking place, the police can certainly prevent it.
- The **Uttar Pradesh State Law Commission**, in its report submitted before the Chief Minister a year ago.
  - It had proposed such a law in the state citing rising incidents of forced religious conversions or conversions through fraudulent ways.
- It defines **punishment and fine** under three different heads.
  - Those found guilty of conversion done though "misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means" in contravention of the law would face jail term of one to 5 years, and a minimum fine of Rs 15,000.
  - In case, such conversion is of a minor, a woman from the Scheduled Caste or Scheduled Tribe, then those found guilty would have to face a jail term from three to 10 years, with a minimum fine of Rs 25,000.
  - On the other hand, if such conversion is found at the mass level, then those guilty would face jail term from three to 10 years, with a minimum fine of Rs 50,000.
- Marriage will be **declared "shunya" (null and void) i**f the "sole intention" of the same is to "change a girl's religion".
- **Legal Conversion**:
  - Anyone wanting to convert into another religion would have to give it in **writing to the District Magistrate at least two months** in advance.
  - The government is supposed to prepare a format for the application and the individual has to fill the application for conversion in that format.

Need of the ordinance

- The ordinance will ensure that that any conversion from one religion to another will be done with free consent of the people involved.
- **Freedom of Religion Acts of Madhya Pradesh and Odisha, in Stanislaus (1977)**:
  - The Supreme Court had held that the "right to propagate" a religion did not include the "right to convert". It also stated that the act of religious proselytization is not protected by Article 25 of the Constitution
- **Lily Thomas and Sarla Mudgal case:**
  - Religious conversions carried out without a bona fide belief and for the sole purpose of deriving some legal benefit do not hold water.
- The ordinance would **apply to people of all religions** without creating any discrimination.

Concerns

- It grossly violates the freedom of conscience and the fundamental right to practice religion guaranteed under Article 25 and also strikes at the right to life and liberty guaranteed under Article 21.

- This ordinance operates on the presumption of the notion of exclusion. It presumes that some categories of the Indian population must be excluded and "othered", and through this, reinforces the idea of communalism as a desirable end in itself.
- Ordinarily, in any criminal case, the burden of proof is on the prosecution. Under this ordinance, however, every religious conversion is presumed to be illegal.
  - The **burden of proof now lies on the person accused** of illegal conversion to prove that it is not illegal.
  - The offence is **cognizable and non-bailable**, so the police can arrest the accused without a warrant.
- If the conversion is for an "**allurement", or an "inducement"** then it is illegal.
  - The term "allurement" is **defined very broadly.** The ordinance spans the sacred and the profane.
  - A gift, gratification, easy money or material benefit, the promise of a better lifestyle, the illusory wrath of divine displeasure or otherwise – any or all of these can amount to an allurement.
- **Reconversion is not illegal** even if it is caused by fraud or force. So, if a person is converted voluntarily, then he might be arrested, but if he's forced to reconvert, then there is no criminal offence.
- **Against Right to Privacy:**
  - **Salamat Ansari v State of UP:** Supreme Court stated that Right to choose a partner irrespective of caste, creed or religion, is part of right to life and personal liberty.
- **Against Freedom of Religion:**
  - **Lata Singh v State of U.P:** Supreme Court stated that once a person becomes a major he or she can marry whosoever he/she likes. If the parents do not approve of such inter-caste or inter-religious marriage the maximum they can do is that they can cut-off social relations, but they cannot give threats or commit or instigate acts of violence.

Ordinance Making Power:

- Article 213 (1) of the Constitution of India provides: "If at any time, except when the Legislative Assembly of a State is in session, or where there is a Legislative Council in a State, except when both Houses of the Legislature are in session, the Governor is satisfied that circumstances exist which render it necessary for him to take immediate action, he may promulgate such Ordinances as the circumstances appear to him to require."
- There are, therefore, three pre-conditions to be satisfied before the Governor promulgates an ordinance:
  - the State Legislature should not be in session;
  - circumstances should exist for promulgating an ordinance and
  - Importantly, those circumstances must warrant immediate action.

FEDERALISM & INTERSTATE WATER GOVERNANCE — GS-II POLITY

Introduction

- India has 25 major river basins, with most rivers flowing across states. As river basins are **shared resources**, a **coordinated approach** between the states, with adequate involvement of the Centre, is necessary for the preservation, equitable distribution and sustainable utilization of river water.
- However, interstate rivers in India have **become sites of contestations**, fuelled by
  - conflicting perceptions of property rights,
  - flawed economic instruments for food security,
  - the lack of an integrated ecosystems approach, and
  - the prevalence of reductionist hydrology for water resource development.
- In recent years, increasing water scarcity, a rapid rise in urban and rural demands for freshwater, and contentious political dynamics have further exacerbated the problem.

Shortcomings of the existing discourse on the issue

- There are three fundamental structural ambiguities that currently affect the system:

1. Historico-geographical:

- Before independence, governmental power was **highly centralized**, the Secretary of State being empowered under the purview of the **Government of India Act, 1919** and the subsequent **Government of India Act, 1935.**
- For any dispute between the provinces, the decision of the Secretary of State was final and binding.
- In the context of water utilization, the **provinces had little authority to make decisions**, with the exception of some autonomy regarding irrigation, under the 1919 Act.

2. Federal Structure:

- In independent India, legislative powers concerning water were distributed between the Centre and the states to ensure optimum utilization while balancing the interests of the states.
- Schedule 7 of the Constitution distinguishes between the use of water within a state and the purpose of regulating interstate waters.
- It gives the **Union Parliament** the power to formulate laws and mechanisms for **regulating interstate rivers**.
- States retain autonomy regarding water utilization for purposes such as water supply, irrigation and canals, drainage and embankments, water storage and water power.
- This approach has created federal-jurisdictional ambiguity.
- Recognizing the issues caused by such redrawing of administrative boundaries, the Union government enacted two other important acts:
  - the Interstate (River) Water Disputes Act, 1956 (ISRWDA) and
  - the River Boards Act, 1956.

3. Institutional:

- With regard to the resolution process for ISWDs, the Supreme Court has made limited intervention to adjudicated disputes, including the **enforcement of tribunal awards**, holding that such disputes can be resolved under **Article 131**.
- However, within this framework, the Supreme Court's role undermines that of the tribunals as adjudicators of ISWDs.
- While Article 262 deters the highest judiciary from adjudicating ISWDs, Article 136 empowers it to hear appeals against the tribunals and ensure the implementation of the tribunal.
- Thus, the **apex court remains the adjudicatory body** along with the tribunals, creating an institutional ambiguity regarding which body is the ultimate adjudicatory power on ISWDs in India.

Dispute Resolution

- Dispute resolution is a layered process, as mandated by the ISWD Act. After receiving a complaint from a state, the **Union government first tries to mediate**.
- It is only when negotiations fail that the Centre is required to **form a tribunal to adjudicate the dispute**.
- However, the states can question the award of the tribunal under **Section 5(3) of the ISWD Act**.
- The jump from negotiation to adjudication has drawn criticism, since the transition should be gradual and pass through the intermediate stages of conciliation and mediation.
- In the case of mediation, the involvement of the third party is more active.
- The 2002 Amendment to the ISWD Act specified a **one-year limit on the timeline** allowed to carry out the process of dispute resolution. The tribunals have been allotted three years to arrive at a final decision, extendable by two years.
- This amendment has faced criticism on the grounds that the **process is divisive and erodes the spirit of accommodation in the conflicting parties**, leading to exaggerated claims by both sides.
- Another critical consequence of the adjudication process: it might **push states to utilize water not due to need but to show that they are using the water** that was allocated to them through the process of adjudication or to create vested right to exercise the doctrine of prior utilization.

Role of Tribunals

- The apex court has **limited the role of the tribunals** to **quantification and allocation of water** between riparian states, and its own role is to be an interpreter of the awards and the water-sharing agreements.
- Yet, the Supreme Court has repeatedly bailed out the Union government and taken on the responsibility of administrative tasks, upsetting the balance of power between the judiciary, executive and legislature.
- These issues have greatly reduced the scope of federalism in Indian polity, **making states subservient to the Union, not quasi-sovereign entities** that became a part of the Union through a series of agreements.
- The two-layered scheme of adjudication by a tribunal as the reason for the inordinate delay. The first is **arriving at a final decision** and the second is the **scope for questioning that decision**.
- The parties to the litigation are **permitted to seek explanation or guidance** from the tribunal on all points, which **triggers an endless cycle**.
- For instance, the **sittings are not routine**, the functioning is **outside the regular court system**, and day-to-day or week-to-week hearings are few and far in between.

Recommendations

- The Centre has taken an important step by attempting to create a permanent. However, some concerns remain.
- The Bill mentions that water should be used as a "**Common Pool Community Resource**" held by the state in the doctrine, but it **does not specify how the community will be involved** in managing the resource without having absolute user rights over it.
- **Ecological restoration and conservation of aquatic biodiversity**, in addition to the balancing of water supply and demand for human use in the management objectives and outcomes of the basin plan.
- The identification of **key issues and risks to river basins** and the strategies needed to address them in both the short and long term.
- The position of the **chairperson of the Governing Council** is mandated to be filled by the chief ministers of the basin states, on rotation. Instead, a neutral party who would consider the long-term goals of the basin should be appointed.
- The **River Basin Authority** must develop **adequate capacity for understanding the unique needs** and realities emerging from the interplay of socioeconomic factors.
- In addition to the creation of institutions at the river basin level, **cooperation entails interplay of politics**, since river basins are as much a political unit as they are a natural one.
- Consensus on river governance must be simultaneously achieved in two levels: **federal consensus** at the institutional level and **electoral consensus** for resolution at the site of mass politics.
- A sound solution must acknowledge that the federal dynamics in India needs confidence-building, both between the Centre and states as well as amongst the states.

JUDICIAL ACTIVISM

GS-II POLITY

Context

- The Supreme Court's intervention (**Rakesh Vaishnav v Union of India 2021**) in the ongoing protests has been met with a storm of criticism.
- It stayed the implementation of the three farm laws until further orders and set up a committee of four members for the purpose of listening to the grievances of the farmers relating to the farm laws and the views of the Government and to make recommendations.

Ignoring Precedents

- The Supreme Court and the high courts have the power to **stay the operation/implementation of laws for lack of constitutional validity**, which is an accepted principle under Indian law.

- However, the reasons for which courts ought to exercise this power are limited and are intended only to **address the most egregious kind of unconstitutional laws** passed by the legislatures.
- Whether in halting economic legislation or laws with wider social impact, the test to be applied for staying a law made by a legislature is that the **unconstitutionality or unjustness of the law is obvious and does not require elaborate argumentation**.
- **Health for Millions Trust Case:**
  - Bombay High Court had stayed the Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 and the rules made to implement it.
  - The interim order of the high court did not indicate any particular reason beyond the fact that the central government lawyer had not appeared in court during the hearing of the case.
  - This order was set aside by the Supreme Court in appeal, pointing out that the high court ought to have applied its mind to the need for a stay and the legal justifications for the same before passing an order.

Judicial Review

- It has been pronounced by the Supreme Court as a fundamental feature of the Constitution and is understood to be the revision of the decree or sentence of a lower court by a higher court.
- Testing the constitutional validity of legislative provisions and the validity of administrative actions is a power commended over to the judiciary alone in our constitutional scheme.
- This power of judicial review is entrusted with a vision to ensure a system of checks and balances between the legislature and the executive on one hand and the judiciary on other hand.

Judicial Activism

- Courts are no more passive and do not follow a negative attitude of striking down a law but are rather adopting a **new attitude towards positive affirmative actions**. They are **issuing orders and decrees** directing remedial actions.
- The citizens have come to an opinion that the legislature and the executive have failed miserably in their duties.
- Citizens **approach the judiciary** to redress their grievances and under this situation the judiciary has taken an activist approach.

Judicial Overreach

- Judicial activism reaches an extreme stage where the **judiciary makes arbitrary, unreasonable and frequent interventions** into the domain of the legislature through disruption of balance of powers between the executive, legislature and judiciary.

Arguments for Judicial Review

- **Role envisaged by constitution:**
  - The Supreme Court is the guardian of Fundamental Rights of Indian citizens. According to Dr B.R. Ambedkar, the provision for judicial review constituted the heart and soul of the constitution.
  - There are many articles in the constitution, Article 32, 141, 142 which show the vision of constitution makers about the judiciary playing a predominant role in upholding the rule of law.
- **Failure of Executives:**
  - When the executive refuses to apply law and willfully constantly and conspicuously refuses to do their duty, it falls to the judiciary to act in defense of the constitution and the mandate of the rule of law and equality before law.
- **Trust of people:**
  - It is quite clear from people approaching the Court on issues of governance, that they have relatively greater regard for the Courts compared to other organs of government.
- **The judicial view that "judges don't make law, they declare it" is flawed.**

- Justice P.N. Bhagwati: "this theory has been evolved in order to insulate judges against vulnerability to public criticism. They can plead helplessness by saying that it is a law made by the legislature and they have no choice but to give effect to it."
- Lord Reid: "We do not believe in fairy tales anymore, so we must accept the fact that for better or worse judges does make law."

- **Miscarriage of justice:**
  - The cost of litigation being quite high, an Indian litigant, moves to court when all other options have failed him. In this scenario, if the court would deny him relief, exercising restraint, then it would be a grave miscarriage of justice.
- **Decline of Parliament and weak governance:**
  - In a developing country like India, where the parliament is adjourned most of the time due to political reasons, the executive branch fails to implement the laws and police and other authorities often misuse their power, the active action by the judiciary is very much needed, though some amount of judicial restraint should be exercised from time to time to prevent vexatious and frivolous cases.

Argument against Judicial Activism

- The major criticism of Judicial Activism is that it is unconstitutional as the **authority of legislative and executive is usurped by the judiciary** which is not elected by the people.
- In most countries, judges are appointed through methods involving selection or nomination, in which o**rdinary citizens do not have a say.**
- It is argued that allowing the judiciary to rule on the validity of the enactments passed by a popularly elected legislature amounts to a **violation of the idea of 'separation of powers'**.

Conclusions

- The power to judicially review legislation is **not one which has been vested lightly in the Supreme Court** or, for that matter, the high courts.
- There is a **duty to exercise them in accordance with the precedents** and constitutional provisions. Courts, unlike elected governments, are not intended to be directly responsible to the electorate.
- The **only form of accountability is imposed on them** through the duty to maintain transparency and the duty to justify their reasoning.
- When they fail in either duty, they risk being seen as an **arbitrary executive authority with few fetters on their powers.**

REGULATION OF ELECTRONIC MEDIA — GS-II POLITY

Context

- The Supreme Court has decided to **examine a petition seeking the framing of guidelines** outlining the broad regulatory paradigm within which the right to free speech of broadcasters and electronic media can be judicially regulated.
- The petition has also sought the setting up of an **independent Media Tribunal** to hear and expeditiously adjudicate complaints against media businesses filed by viewers and citizens.

Media consumption and distribution in India

- India is one of the world's most dynamic entertainment markets.
- **World Economic Forum** research shows that both **demand and willingness to pay** for entertainment are on the rise.
- Between 2016 and 2018, TV-owning households **increased by 7.5**% and viewing time increased by 3%, with the rise attributed to growing incomes in semi-urban and rural areas.

- There is a **trend towards digital formats**, with the greatest growth occurring in the streaming sector.
- By 2014, Indians aged 15-24 were already watching 25% more online video each month than those aged 45+, and between 2016 and 2020, revenues in video platforms grew 35%, compared to only 9% for TV.

Way Forward

- With the massive growth in digital video content consumption in India, the central government is likewise considering how to update its policies to **better reflect digital habits and preferences.**
- The **Ministry of Information and Broadcasting** has been responsible for applying these rules to film and television, and its regulations have been **focused on concerns of national security and unity, restricting any content inciting violence** or promoting anti-national attitudes.
- There remains a risk that the government would **apply rules designed for an old system** – traditional broadcast media – to the **video streaming landscape**.
- Digital consumption means that a model where broadcasters control the schedule and programming of content is becoming less relevant due to streaming's personalized service options, such as parental controls that safeguard against harmful content.
- Media platforms must have the **autonomy to decide on the content** and **resolve consumer complaints on their own**.
- Proposed regulations, if not executed well, could hobble new developments, even if some oversight was the need of the hour.
- New approach will need to strike a **delicate balance to be both effective in and reflective** of our digital age.
- Attempts at making new rules for intermediaries such as Google and Facebook need to be **well thought-out and measured**.
- Earlier attempts at imposing a high degree of liability on them for content posted on their platforms have not survived legal scrutiny, with **Section 79(1) of the IT Act, 2000,** giving them some immunity in this regard. An intervention that is light and well considered is what will work.

MERCY PETITION & CAPITAL PUNISHMENT

GS-II POLITY

Context

- The Supreme Court recently stated that scope of a judicial review of the President's decision to reject a mercy petition is very limited.

Process of making a mercy petition

- There is no statutory written procedure for dealing with mercy petitions, but in practice, **after extinguishing all the reliefs in the court of law**, either the convict in person or his relative on his behalf may submit a written petition to the President.
- The petitions are **received by the President's secretariat** on behalf of the President, which is then **forwarded to the Ministry of Home Affairs** for their comments and recommendations.
- A convict under the sentence of death is allowed to make the petition within a **period of seven days after the date on which the Superintendent of jail** informs him about the dismissal of the appeal or special leave to appeal by the Supreme Court.
- The Home Ministry in **consultation with the concerned State Government** discusses the merits of the petition. After the consultation, recommendations are made by the Home Minister and then, the petition is sent back to the President for his decision.

Constitutional Provision:

- As per the Constitutional framework in India, mercy petition to the President is the last constitutional resort a convict can take when he is sentenced by the court of law.
- A convict can present a mercy petition to the President of India under Article 72 of the Constitution of India.
- Similarly, the power to grant pardon is conferred upon the Governors of States under Article 161 of the Constitution of India.
- Article 72 provides:
  (1) The President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence—
  (a) in all cases where the punishment or sentence is by a Court Martial;
  (b) in all cases where the punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union extends;
  (c) in all cases where the sentence is a sentence of death.

While Article 161 provides: Power of Governor to grant pardons, etc., and to suspend, remit or commute sentences in certain cases. The Governor of a State shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence against any law relating to a matter to which the executive power of the State extends.

Abolishing capital punishment

- **Law Commission of India** in 2015 proposed abolishing the death penalty and sought the comments of States and Union Territories on the subject. Despite reminders, just 14 States responded by 2018. Of these, **12 States rejected the proposal**, while Karnataka and Tripura concurred.

Global Status of Capital Punishment

- India figures among the **56 nations in the world** that have **retained the death penalty**, while **142 have abolished** it either by practice or by law.
- In 2019, the **Sri Lankan government** put an end to its four-decades-long moratorium on capital punishment when then President Maithripala Sirisena ordered the execution of four drug offenders.
- According to **Amnesty International**, thousands of Chinese are executed in that country every year, though such executions are classified as secret information.
- In 2018, Iran executed 253 convicts and Saudi Arabia executed 149. However, the total number of executions across the world came down in 2018 to 690 from 993 in 2017.

Reasons to abolish the death penalty

- **Irreversible:**
  - Execution is the ultimate, irrevocable punishment: the risk of executing an innocent person can never be eliminated.
  - Since 1973, for example, more than 160 prisoners sent to death row in the USA have later been exonerated or released from death row on grounds of innocence.
- **No Deterrence:**
  - Countries who execute commonly cite the death penalty as a way to deter people from committing crime.
  - This claim has been repeatedly discredited, and there is no evidence that the death penalty is any more effective in reducing crime than life imprisonment.
- **Skewed Judicial System:**
  - People were executed after being convicted in grossly unfair trials, on the basis of torture-tainted evidence and with inadequate legal representation.
  - In some countries death sentences are imposed as the mandatory punishment for certain offences, meaning that judges are not able to consider the circumstances of the crime or of the defendant before sentencing.

- **Discriminatory:**
  - The weight of the death penalty is disproportionally carried by those with less advantaged socio-economic backgrounds or belonging to a racial, ethnic or religious minority.
  - This includes having limited access to legal representation, for example, or being at greater disadvantage in their experience of the criminal justice system.
- **Used as Political Tool:**
  - The authorities in some countries, for example Iran and Sudan, use the death penalty to punish political opponents.

Reasons to continue the death penalty:

- **Death penalty will deter further crimes:**
  - By awarding the most stringent punishment for the most heinous of crimes, future crimes may be deterred. This works at the very root of human psychology.
  - The basics of psychology state that, when a person knows he is likely to get severely punished for a particular act, and the burden from that act far outweighs the benefit, it is only obvious that the person would not commit that act.
- **Death penalty ensures justice:**
  - The Preamble to the Constitution of India, seeks to achieve for all the Indian citizens Justice, among other things.
- **Death penalty is not arbitrarily awarded:**
  - Death penalty is not awarded without any basis or arbitrarily without any rationale or reasoning.
  - First off, as has already been stated capital punishment is awarded only in the rarest of rare cases.
  - Second, even if the death sentence is passed, the convict has the right to file for a mercy petition, or due to unreasonable delay there is a possibility that the death sentence might be commuted to life imprisonment.
- **Question of morality.**
  - Though the abolitionists contend that it is immoral for the State to take the life of a person, the same position holds good for the contrary as well.
  - It connotes that the presence of capital punishment means that the State confers individual dignity upon convicts, by treating them as persons who are capable of choosing the paths they want to tread on and taking full responsibility for the consequences of their actions.
  - If capital punishment is to be abolished on the grounds of immorality then it is equal to treating the convicts as animals who do not have a sense of morality and must be excused for even the most heinous crimes committed by them.

Conclusion

- The death penalty debate has turned into the most socially relevant debate owing to the recent executions. With the human right activists garnering more strength in their debate, it was considered material and essential to state the viewpoints against the contentions of the activists.
- To conclude, it can be reiterated that death penalty is a requirement in the contemporary society where each man stands for himself. Harsh punishment is required to keep the potential convicts at bay, and ensure that the society is not harmed or the peace, tranquility and order of the society is not compromised.
- The State cannot compromise the lives of hundreds and thousands of innocent persons only for the life of one convict who does not even deserve to live among a society of civilized persons. Thus, death penalty must continue to exist.

Context

- In a significant judgment affecting inter-faith couples seeking to get married under the Special Marriage Act, 1954, the Allahabad High Court has ruled that it would be **optional and not mandatory** for them to **publish a notice** about their intended marriage.
- Court said such a notice was an **invasion of their privacy, drawing unnecessary social pressure and interference in their life.**

Real issue

- States such **as Uttar Pradesh and Madhya Pradesh** framing laws that target inter-faith marriage, the procedural requirements of the SMA — such as the need to give prior notice, and allowance for 'objections' — seem to be undermining its original intent by opening the doors to violent moral policing by vigilante groups.
- In a significant ruling, the Allahabad High Court decreed that conversion just for the purpose of marriage is "unacceptable".

Why was this legislation needed in the first place?

- The original Special Marriage Act was enacted in **1872.**
- It was moved by an eminent jurist and Legislative Council member named **Henry Maine.**
- It was enacted following a **campaign launched in 1860 by Brahmo Samaj,** especially Keshab Chandra Sen, for simpler marriage ceremonies.
- However, it had one problem: it required that two people of different faiths who wish to get married must renounce their respective religions.
- By 19th century standards, this law paved the way for inter-faith marriages was a good first step.
- However, its requirement of renouncing one's religion was not compatible with modern ideas of liberalism, individualism and autonomy of the individual.
- Therefore, the 1954 law replaced this 1872 Act, and the requirement to renounce one's religion was removed.
- This law was the **first step towards a Uniform Civil Code.**
- **It was formulated to provide a secular form of marriage.**
- The thinking was that if you wanted a liberal, modern, secular and progressive law; let us start the experiment on a voluntary basis.
- Therefore, those going for an inter-faith marriage, as well as others, could register under the SMA.
- The effect of the SMA is that **once a marriage is registered under it, religion's personal laws will not apply.**

Key provisions of SMA

- All marriages done under the SMA require publication of the names of the couple for inviting objections from the public for 30 days.
- Marriages solemnized under Special Marriage Act are **not governed by personal laws.**
- It is applicable to the **entire territory of India and extends to intending spouses who are both Indian nationals living abroad**
- Marriage performed under this Act is a civil contract and there need be no rites or ceremonial requirements
- Each party involved should have **no other subsisting valid marriage i.e. marriage should be monogamous for both parties**
- The groom must be at least 21 years old; the bride must be at least 18 years old
- The parties **should not fall within the degree of prohibited relationship**
- Succession to the property of person married under this Act are governed by Indian Succession Act.
- It is appropriate to all residents of India regardless of their religion applicable at Court marriage.

Assess the SMA's impact

- It has **not been sufficiently used.**

- It is often used when people are going abroad.
- For two Hindus married under the **Hindu Marriage Act**, the certificate used to be called a 'Memorandum of Marriage', which was not recognised by certain countries while issuing a visa.
- Therefore, people would then register their marriage under the SMA. In addition, earlier, under the Indian Divorce Act, applicable to Christians, mutual consent was not available.
- Only registering one's marriage under the SMA gave them the right to divorce by mutual consent, so they would be advised to register their marriage under the SMA.
- The SMA was also used for inter-religious marriages, but the **process and procedure are seen as tedious.**
- The SMA did not achieve the kind of success it was intended to achieve.
- Very few marriages get registered under the SMA demonstrates that **society is not yet ready to involve public institutions in what are purely private relationships.**
- When the SMA was enacted, the **notice requirement** was meant to ensure that the **man did not already have a spouse and does not marry a minor.**
- Now it has become an **invitation to moral policing by right-wing groups.**
- The Supreme Court has finally admitted a petition where the constitutionality of this provision will be examined.
- If the right to privacy judgment is taken into consideration, there is no way this notice requirement can be sustained as constitutional.
- **Equality is the real issue.** For instance, what are the matrimonial rights that women have within a marriage? It is just a right to maintenance, and given the manner in which courts pass these orders, it is usually ₹500 or ₹1,500.
- In addition, we have still not progressed towards what we would like as matrimonial property.
- The state should focus on rights women within a marriage and should aim for a more equal, progressive law.

Can the SMA do a better job of protecting inter-faith couples?

- A marriage is a **civil contract**.
- Civil law is **not meant to protect people against violence or against societal reaction**.

Issues with the Act

- Publication of confidential details through a public notice is **"infringement of the rights of autonomy, equality, dignity and the right to marry"**.
- It makes inter-caste and inter-religious couples vulnerable to **honour killings and violence.**
- It is believed that this legislation encouraged marriages based on lust, which inevitably lead to immorality
- It permits any dissenters to give up their profession of faith altogether to marry whomever they chose under the protection of this act.
- **Issue of conversion on the name of marriages is harming social fabric of society and creating law and order issues for states.**
- Some antisocial elements are using marriage for fraudulent conversions, which encourage vigilantism and moral policing
- Lack of awareness among the people and poor implementation by police personnel and state administration.
- There is **no provision of punishment in the act**, if either party is already married and suppressed such information
- At least one party should reside for 30 days in that particular marriage registrar's district where the application is to be made, make the couple prone to **faces social stigma, family coercion and harassment.**

Way Forward

- There is need to **relook at this law** as it addresses the issue of inter-cast and inter-religious marriages but **does not mention punishment for forced conversion**.
- **Marriage, religious conversion and personal matters** (marriage, succession, divorce, adoption) are different issues thus **should be dealt separately.**
- There is a high time to **bring and implement the uniform civil code**

- Awareness, wider consultation, policy review, law dealing with fraudulent conversions is need of the hour
- Special cells, helpdesk should be in place to protect the interfaith couple from family coercion, right wing groups or communal propagandist.

Conclusion

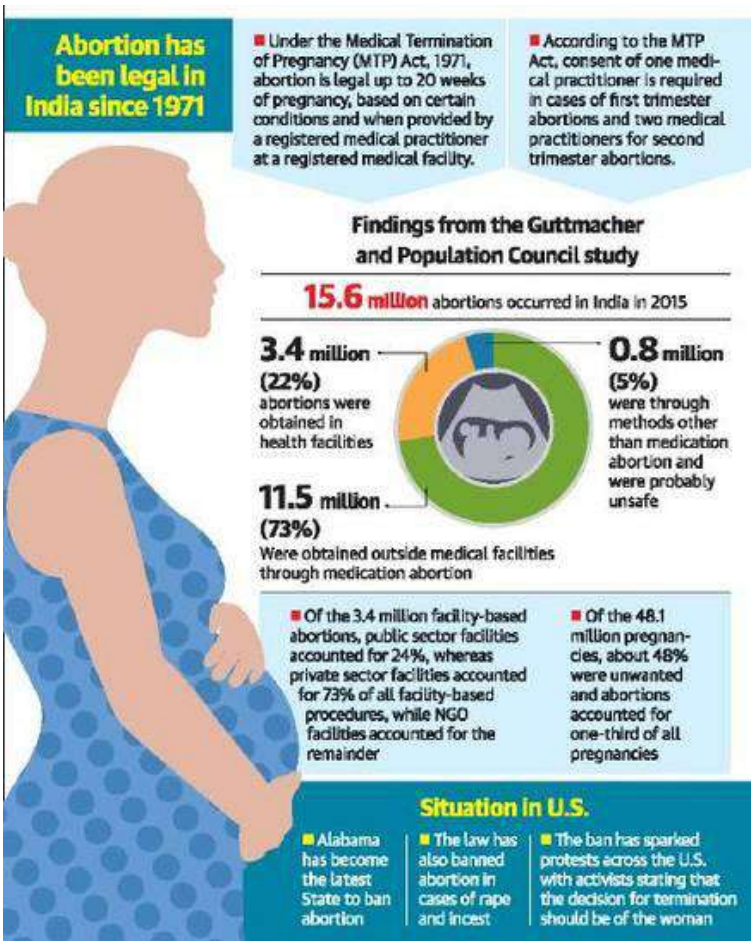
- **Kerala Registration department**, discontinuance of practice of uploading marriage notices on its websites is step in a right direction to assures safety and privacy of couples marrying across religions.

MEDICAL TERMINATION OF PREGNANCY

GS-II SOCIAL JUSTICE

Context

- The Delhi High Court **allowed a woman's plea to terminate her 28-week pregnancy** after a medical board constituted by AIIMS said her foetus could be aborted as it suffered from anencephaly, and was incompatible with life.


Abortion has been legal in India since 1971
Under the Medical Termination of Pregnancy (MTP) Act, 1971, abortion is legal up to 20 weeks of pregnancy, based on certain conditions and when provided by a registered medical practitioner at a registered medical facility.
According to the MTP Act, consent of one medical practitioner is required in cases of first trimester abortions and two medical practitioners for second trimester abortions.
Findings from the Guttmacher and Population Council study
15.6 million abortions occurred in India in 2015
3.4 million (22%) abortions were obtained in health facilities
0.8 million (5%) were through methods other than medication abortion and were probably unsafe
11.5 million (73%) Were obtained outside medical facilities through medication abortion
Of the 3.4 million facility-based abortions, public sector facilities accounted for 24%, whereas private sector facilities accounted for 73% of all facility-based procedures, while NGO facilities accounted for the remainder
Of the 48.1 million pregnancies, about 48% were unwanted and abortions accounted for one-third of all pregnancies
Situation in U.S.
Alabama has become the latest State to ban abortion
The law has also banned abortion in cases of rape and incest
The ban has sparked protests across the U.S. with activists stating that the decision for termination should be of the woman

Medical Termination of Pregnancy Act of 1971

- The Medical Termination of Pregnancy Act of 1971 **prohibits abortion of a fetus after 20 weeks of gestation.**

Petitioner Claims

- With **advances in technology**, it was perfectly safe for a woman to abort a fetus at any point during her pregnancy.
- Determination of foetal abnormality in many cases **can only be done after the 20th week** and "by keeping the ceiling artificially low, women who obtain reports of serious foetal abnormality after the 20th week have to suffer excruciating pain and agony because of the deliveries that they are forced to go through.
- The ceiling of 20 weeks is therefore arbitrary, harsh, discriminatory and **violation of Articles 14 and 21 of the Constitution of India.**

What is MTP Act 1971?

- It **legalized abortion in India up to 20 weeks** of pregnancy, based on certain conditions and when provided by a registered medical practitioner at a registered medical facility.
- **Conditions** under the MTP Act under which a pregnancy may be terminated are
  - continuation of the pregnancy would involve a **risk to the life of the pregnant woman or cause grave injury to her physical or mental health.**
  - substantial risk that the **child, if born, would be seriously handicapped** due to physical or mental abnormalities;
  - pregnancy is **caused by rape** (presumed to constitute grave injury to mental health) and
  - pregnancy is **due to failure of contraceptive in a married woman** or her husband (presumed to constitute grave injury to mental health).

Why is it important to amend the MTP Act 1971?

- According to a study published in the Lancet Global Health, 15.6 million abortions occurred in India in 2015 of which **78% of these were outside health facilities.**
- Abortion was legalised 50 years ago, yet **10 women die every year as a result of unsafe abortions** – making unsafe abortions the **third-leading cause of maternal deaths** in the country.
- Other barriers to safe abortion include the implementation of the Protection of Children from Sexual Offenses Act, 2012 (POCSO Act), and the Pre-Conception Pre-Natal Diagnostic Techniques Act, 1994 (PCPNDT) as result of which doctors hesitate to provide abortion services to women and young girls.
- "The existing MTP Act, 1971, **has not kept pace with the changing times, needs and advancements in medical science.**
- More women are now approaching the Courts to seek approval for abortion over 20 weeks, a provision that has been made available in a number of countries around the world.
- A decision to terminate a pregnancy, as provided by existing laws, is the right of the women and asking them to **seek approval from a medical board stigmatises and further traumatises them**.
- This is not **only a violation of their rights.**
- MTP Act was passed to **protect women's right to life through its provisions**, but now it constrained it in changing context.
- As per current MTP Act, **abortion is the not the right of woman in India and can only be provided at the discretion of a medical practitioner.**
- There is **ambiguity around the provisions in the MTP Act for unmarried women to terminate pregnancy due to contraceptive failure** since considerable stigma is attached to having a non-marital pregnancy or birth.
- For **second trimester abortions**, the **consent of two medical practitioners** is required. This is **particularly challenging in rural areas** where many a times a second practitioner is not available.
- India is changing rapidly and people's needs and their lives are no longer similar to what was in 70s when this Act was passed.
- MTP Act should therefore, be **amended immediately to allow AYUSH doctors and Nurses to provide it.**
- The second urgency is about **frequent legal intervention** that is common these days. This is a health issue, not a legal issue.
- These individual cases should never need to go the court and MTP Act should be amended to provide guidance to doctors for every situation.

How aged MTP Act 1971 curtails women's reproductive rights?

- According to MTP, women are allowed to terminate an unwanted pregnancy **without providing any reason within 12 weeks** and for pregnancy exceeding 20 weeks, women **have to get certificate or recommendation from two certified doctors/medical practitioners.**
- MTP Act ensures **women's right over her body,** but it is also **restricting the basic fundamental right to life.**
- The Act protects women from a life-threatening situation if the pregnancy goes wrong. The MTP Act gives **limited right to women for making the decision for herself to abort the fetus** at a certain point of the pregnancy to protect their own health and life.
- It is a fundamental principle for women's equality to be able to make decisions for own body, it also **the first step towards gender equality** that women must get total control over their rights, which is currently being denied.

Conclusion

- If a woman does not want a child, according to her will, she should have the sole right over the decision to terminate the pregnancy.
- The mandatory recommendation of doctors should be removed completely. The right to terminate a pregnancy should only be of the woman, who goes through all this mentally, physically and emotionally.

LABOUR LAWS & GENDER ROLES IN INDIA

GS-II SOCIAL JUSTICE

Context

- Actor Anuskha Sharma and her husband, Indian cricket captain Virat Kohli, became parents to a girl on January 11. While the Indian team is on a tour to Australia, Kohli came back to India after the first Test, on paternity leave.

Law on paternity leave

- Unlike maternity leave, which is legally mandated, the private sector is not bound to provide paternity leave in India.
- There is a legal stipulation for central government employees –– a "male civil servant (including an apprentice, probationer) with less than two surviving children may be granted Paternity Leave for a period of 15 days before or up to six months from the date of delivery of the child."
- The "less than two surviving children" means the employee can take paternity leaves only for his first two children.
- Thus, the decision on how long a paternity leave they wish to provide rests with a particular company.
- The longest leave –– six months –– is provided by Ikea, which extends rules from home country Sweden to India.
- Among Indian companies, Zomato made news in 2019 when it decided to give a 26-week paternity leave to its employees.
- For women, on the other hand, the law mandates that female workers of all establishments with 10 or more workers can take 26 weeks of paid leave, up to eight weeks of which can be claimed before the delivery of the child.

Effect of the imbalance

- Over the years, many have pointed out that while short paternity leaves deprive fathers of the chance to spend time with their newborns and burden mothers unfairly with the bulk of care giving, they also make hiring men more advantageous for companies.

Societal attitudes

- Socially, **child rearing is still** largely **considered a woman's responsibility** in India, and thus, if companies are not offering long paternity leaves, it is also because employees are not asking for it.
- In 2016, when demands were made that paternity leave be made **legally binding** just like maternity leaves, then WCD minister Maneka Gandhi had said: "I will be happy to give it, but for a man, it will be just a holiday, he won't do anything."
- In 2017, Congress MP Rajeev Satav had moved a **private members Bill**, the Paternity Benefit Bill, 2017, which proposed equal maternity and paternity leaves across all sectors. It has not moved forward.

VALUE OF HOUSEWORK

GS-II SOCIAL JUSTICE

Context

- In the context of the forthcoming State Assembly election in Tamil Nadu, the Makkal Needhi Maiam (MNM), has made an eye-catching election promise that is evidently targeted at a large constituency of voters — women who are full-time homemakers.
- The party has promised to recognise **housework as a salaried profession** by paying homemakers 'hitherto unrecognized and unmonetized' for their work at home.

Origins of the demand

- The demand for 'wages for housework' arose in the context of struggle and consciousness-raising associated with the **Second Wave of the women's movement in North America and Europe.**
- In doing this, they challenged the assumption that a 'natural' affinity for housework was rooted in the essential nature of women who were **performing a 'labour of love'.**
- For leading women's rights activists of the 1960s and 1970s, it was important to **bust the myth that women's work at home was a personal service with no links to capitalist production.**
- In a concrete sense, this meant linking the exploitation of the worker in the factory to women's work at home.
- The woman working at home produced '**the living human being — the labourer himself.**'
- From the nine-month period of gestation in the womb, women's daily chores of cooking, cleaning, washing, ironing clothes, preparing lunch boxes and so on produced the labour power.
- By providing free services in the home, women made possible the **survival of working-class households at subsistence-level wages**, with obvious benefits for industry and capital.
- Despite the links between the 'housewife' and the factory worker, the unwaged status of the former accounted for crucial differences between them.
- Housework had come to define the very nature of a woman and **disallowed women from seeing it as 'real work' or as a social contract.**
- For the advocates of 'wages for housework', the **wage that the state ought to pay women would make them autonomous of the men on whom they were dependent**.

An unresolved issue

- The sociologist, believed that **'wages for housework' would only imprison women further within the household, increase their social isolation and dissuade men from sharing housework.**
- Others too argued that the goal of the women's movement must be, to not ask for wages, but to **free women from the daily drudgery of routine domestic chores and** enable them to participate fully in all spheres of social life, including **paid employment** outside the household.
- **Monetary remuneration** for housework remained unresolved as the **tools to measure the value that women's unpaid work adds to national economies have grown more sophisticated.**
- A **report published** by the **International Labour Organization** in 2018 shows that, globally, **women perform 76.2% of total hours of unpaid care work, more than three times as much as men. In Asia and the Pacific,** this figure rises to **80%.**

Defining this constituency

- These are issues that cannot be easily resolved.
- Would the payment of a wage by the state to homemakers redress the situation?
- Many women earning a wage outside the home also perform the bulk of household work. On what ground are they to be excluded?
- What about women workers who earn an income from home by stitching clothes, selling cooked meals or are engaged in petty trade?
- They often self-identify as 'housewives' given the meager and variable wages they earn and periods of seasonal unemployment.

Struggle for legislation

- Demand of state recognizing the housework is significant and its radical core must not be missed, as the historical experience of the women's movement shows us.
- The question of how to measure and account for the value of housework has been seriously addressed by women domestic workers and their trade unions in Tamil Nadu and elsewhere.
- Their demands include an **hourly minimum wage, a weekly day-off, an annual bonus and the protection of their bodily autonomy in the workspace.**

Way out

- It would be better to **strengthen the demand for a universal basic income for income-poor households** and make sure that the cash transfer to the family reaches women directly, whether or not they combine household work with paid work.

Conclusion

- If domestic workers emerge as a strong force and succeeds in asserting the **dignity of housework and making it a visible and valued form of labour**, this can only be a good thing for all women performing housework in the long run.

INSTITUTIONS OF EMINENCE' SCHEME

GS-II SOCIAL JUSTICE

Context

- The new guidelines have been issued in line with the new **National Education Policy (NEP)** as per which **foreign universities will be allowed to set up campuses in India** and top Indian institutes in foreign countries.
- Indian universities and colleges with the Institutions of Eminence (IOEs) tag, which include several IITs, will now be able to set up campuses in foreign countries with the University Grants Commission (UGC) issuing fresh guidelines on the same.

Background

- It is a recognition scheme to empower higher education institutes in India. It was first announced in 2016 Union budget.

Objectives of IoE Scheme

- To provide an enabling regulatory architecture to ten public and ten private Higher Educational institutions to emerge as **world-class teaching and research institutions.**
- To provide a robust higher education system to become leaders in excellence and innovations
- To engage in areas of specialization to make distinctive contributions to the university education system.
- To enhance **affordable access to high quality education** for ordinary Indians.
- To compete in the global tertiary education marketplace through the acquisition and creation of advanced knowledge.

Selection Criteria

- UGC had constituted an Empowered Expert Committee (EEC) under **N. Gopalasamy chairmanship;** to recommend a list of institutions on the basis of following criteria:
- Institutions, which have figured in the **top 500 of QS World University Rankings or top 50 of the National Institutional Ranking Framework (NIRF)** rankings, shall be recommended for the IoE status.
- Yet to be established (**Greenfield Institution**) will also be recommended.
- They would get 3-year period to establish and operationalise, and thereafter, EEC will consider giving IoE status to such institutions.

Benefits granted under IOE scheme

- **Funding**: Government Institutions will get additional funding upto **1000 Cr**. Private Institutions proposed, as IoE will not get any financial support.
- **More Autonomy**: The selected Institutions under IoE shall have
- Complete **financial autonomy** to spend the resources raised and allocated, subject to general conditions & restrictions of the Statutes.
  - Freedom to fix and charge fees from foreign students without restriction.

  - Freedom to determine the domestic student fees, subject to the condition that no student who gets selected admission is turned away for lack of finance.
- Complete **academic and administrative autonomy**
  - Flexibility in fixing of curriculum and syllabus, with **no UGC mandated curriculum structure.**
  - UGC Inspection shall **not** apply to IoE.
  - Freedom to enter into academic collaborations with foreign higher educational institutions (in top 500) **without** government approval.
  - Freedom to hire personnel from industry, etc, as faculty who are experts in their areas but may **not** have the requisite higher academic qualifications
  - Freedom to recruit faculty from outside India
  - Freedom to enter into academic collaborations with other Institutions within the country
  - Freedom to have own transparent merit based system for admission of students.
  - Freedom to admit additionally foreign students on merit subject to a maximum of 30% of the strength of admitted domestic students.
  - Freedom to offer courses within a program as well as to offer degrees in newer areas.
  - Freedom to offer online courses as part of their programmes with a restriction that not more than 20% of the programme should be in online mode.

Concerns with this Scheme

- Critics says that IoE **selection process is faulty** as the reputed institutes like Jawaharlal Nehru University, which has figured in international rankings and produced many well-known public intellectuals is not considered for the IoE award.
- Granting of IoE status to private institutions that are run with a commercial motive can **encourage the commercialisation of education**.

DIGITAL DIVIDE IN EDUCATION

GS-II SOCIAL JUSTICE

Context

- Children from economically weaker backgrounds have fallen behind as classes shifted to the digital mode.
- Although there has been a lot of public discussion on digital modes of education for schoolchildren, **online and video classes catered largely to urban or educated elite populations whose children went to private schools.**

Story so far

- In India, school closures post the spread of the pandemic started as early as March 2020.
- The **Annual Status of Education Report (ASER 2020 Wave 1)** conducted in September 2020, focused on a nationally representative sample of rural children and their access to learning opportunities during the period when schools were still closed.
- State governments as well as private schools tried to provide learning materials in a variety of ways.
- However, not much was known about whether children were receiving this material and how they engaged with it.
- In addition, to understand if this shift to remote learning will widen the digital divide and accentuate equity issues in learning.
- It is well established that **children from economically weaker backgrounds have lower learning outcomes.**
  - For instance, children from poorer households tend to have less educated parents who are unable to provide learning support like in richer households.
- Parents support their children's learning in many ways — helping with homework, sending children to tutors or private schools, and spending more time with children.
- All these inputs contribute to the overall development of the child.
- Remote learning opens up another channel that widens the learning disadvantage of relatively poorer children.

- These children may not have access to devices like computers, tablets, smartphones etc. that are needed for remote learning and, therefore, may not be able to access the opportunities provided during the pandemic.

ASER 2020

- ASER 2020 has found that **children with low parental education** are **less likely to have a Smartphone** — 45 per cent as compared to 79 per cent of children with high parental education.
- Such families are also more likely to send their children to government schools — 84 per cent compared to 54 per cent for children with more educated parents.
- Further, only 55 per cent of children with low parental education received any learning support at home compared to almost 90 per cent of children with high parental education.

What about other learning resources, like availability of textbooks and access to private tuition?

- Here the **gap is much smaller**: 28 per cent children with low parental education took private tuition compared to 33 per cent with high parental education.
- Similarly, there was not much difference in access to textbooks — 79 per cent versus 83 per cent.
- However, only 23 per cent children with low parental education received any material as compared to 49 per cent of children with high parental education.
- There could be a variety of reasons for this large gap in access.
    - First, as noted earlier, **a majority of children at the lower end of the income distribution is enrolled in government schools** and these schools were slightly less successful at distributing learning materials (other than textbooks) as compared to private schools.
    - Second, while **schools used a variety of ways to share material and activities such as phone messages, messenger** apps, in-person visits and phone calls, 87 per cent of children received learning material via one medium, predominantly WhatsApp (72 per cent).
- With limited access to digital devices, it is not surprising that **less than 5 per cent of rural children with low parental education attended online classes** as compared to 20 per cent of rural children with high parental education.
- Therefore, not only did these children have limited access to learning materials during the school closures, they also started with a much **larger learning deficit**.
- **Community can play a larger role**. During the school closures, almost 70 per cent of school respondents reported getting help from a variety of community members to reach out and support children.

How to reduce the digital divide in education?

- **Infrastructure:** stronger infrastructure to provide uninterrupted Internet connection and electronic devices to students if we are to narrow the digital divide.
- **Adjust Resources and Assignments** to reduce the need for home Internet connectivity.
- **Work with the Community:** Community organizations, community centers and Public libraries should offer free Internet access.
- **Increase affordability:** One of the chief internet adoption barriers in both developed and developing countries in the world is affordability. Governments can give tariff subsidies to encourage them to buy these digital tools.
- **Empowering users:** An issue that broadens the digital divide is '**participation inequality**' where users lack the skills to use it.
- **Improve the relevance of online content:** Top barrier to internet penetration in developing countries is relevance. As people cannot find content, online services or web and mobile applications in their primary language. To encourage internet adoption in such places, local content and **applications need to be developed in local languages that can be understood by the local populace.**
- **Address gender gap in internet access:** Statistics on internet usage carried out in 2016 showed that there are 250 million fewer women online than men. The effort to close this gender gap lies squarely on both government and non-governmental organizations which must partner up and work together.

Food Safety and Standards Authority of India (FSSAI)

- It is an **autonomous body** established under the **Ministry of Health & Family Welfare, Government of India.**
- The FSSAI has been established under the **Food Safety and Standards Act, 2006,** which is a consolidating statute related to food safety and regulation in India.
- FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.
- Following are the **statutory powers** that the FSS Act, 2006 gives to the Food Safety and Standards Authority of India (FSSAI).
  - **Framing of regulations** to lay down food safety standards
  - Laying down guidelines for accreditation of laboratories for food testing
  - Providing scientific advice and technical support to the Central Government
  - Contributing to the development of international technical standards in food
  - Collecting and collating data regarding food consumption, contamination, emerging risks, etc.
  - Disseminating information and promoting awareness about food safety and nutrition in India

JAYA JAITLEY TASK FORCE

GS-II SOCIAL JUSTICE

Context

- The task force set up to take a **re-look at the age of marriage for women** has submitted its report to the Prime Minister's Office and the Ministry of Women and Child Development.

Minimum age for marriage in India

- Minimum age is **essential to outlaw child marriages** and prevent the abuse of minors.
- Personal laws and customs of various religions that deal with marriage generally set ground for minimum age.
- Section 5(iii) of the Hindu Marriage Act, 1955 sets 18 years as the minimum age for the bride and 21 years as the minimum age for the groom.
- In Islam, the marriage of a minor who has attained puberty is considered valid.
- The Special Marriage Act, 1954 and the Prohibition of Child Marriage Act, 2006 prescribe 18 and 21 years as minimum age for marriage for women and men respectively.
- Sexual intercourse with a minor is rape, and the 'consent' of a minor is considered invalid.

Law evolution

- A legal framework for the age of consent for marriage in India only began in the 1880s.
- The Age of Consent Bill, 1927, which declared that marriage with a girl under 12, would be invalid.
- In 1929, The Child Marriage Restraint Act (Sarda Act) set 16 and 18 years as the minimum age of marriage for girls and boys respectively.
- Sarda Act was amended in 1978 to prescribe 18 and 21 years as the age of marriage for a woman and a man respectively.
- Prohibition of Child Marriage Act (PCMA), 2006 work for prevention of child marriages, protection of children involved and prosecution of offenders.

Why there is need to relook the law?

- With at least 1.5 million girls married under the age of 18, India contributes to the **largest number of child brides in the world**
- Law commission recommend a uniform age of marriage as having different legal age **leads to the stereotype those wives must be younger.**
- In 2018, National Human Rights Commission recommended that there **should be a uniform age of marriage for boys and girls**
- Early marriages causing early pregnancies are inherently linked to higher rates of maternal and infant mortality

- To curb the stereotype that women are more mature and can be given greater responsibilities at a younger age in comparison to men
- It **violates Articles 14 and 21 of the Constitution**, which guarantee the right to equality and the right to live with dignity.

Why there is no need to reform legal age?

- It has been a contentious issue as it faces much of resistance from religious and social conservatives.
- Eighteen is the age of attainment of adulthood in India by most legal yardsticks. It is the age of consent for boys and girls and to attain voting rights.
- The NFHS indicates that women getting married before turning 18 is falling sharply from 47.4% to 26.8% from 2005-06 to 2015-16.
- It can become a tool for parental control and punishing young couple for their life choices.
- It will exclude a vast majority of Indian women from legal protection system if they get married before 21 either under parent pressure or by personal choice.
- Implementation of the law will be very difficult in the absence of enabling socioeconomic conditions.
- Instead of raising the age of marriage it is important to declare child marriages void ab initio and create environment to empower young women.

Conclusion

- The government has to adopted a **multi-dimensional strategy** to work on all those factors that impact the socio-economic development of women.
- Through targeted social and behaviour change communication (SBCC) campaigns government can **create gender-neutrality.**

Context

- Five new countries — India, Mexico, Norway, Ireland and Kenya — formally joined the U.N. Security Council. The new countries will hold non-permanent seats on the 15-member council for two years.

Issues related to the United Nations Security Council

The United Nations Security Council has several significant problems.

- **Membership of the Security Council:**
  - It has changed very little since its inception in 1945, even though the **number of UN member states has almost quadrupled** since then and the **relative power of member states** has changed significantly.
  - The only change in membership has been the addition of **four non-permanent seats in 1965**.
  - **African states** call the under-representation of Africa a "historical injustice" which needs to be corrected.
- **Differences between permanent and non-permanent seats:**
  - The five permanent members (P5) – **Britain, France, United States, Russia and China** – possess permanent seats and have the privilege of the **veto** whilst the status of non-permanent members is low.
  - The non-permanent members have essentially been **relegated to a role of rubber stamping decisions** made by the P5 or choosing between their contending positions.
  - P5 have on many occasions **abused their veto powers**. Another important issue regarding the veto is that the decision probability in the Security Council remains very low.
- **Performance:**
  - The performance of the Security Council in maintaining international peace and security has been poor.
  - In **Somalia**, the choice of strategy was counterproductive and Washington's political timetable for the mission too arbitrary.
  - In **Bosnia**, the operation was severely undermanned and the Security Council failed to provide adequate protection for the UN safe areas, resulting in the Srebrenica Massacre. I
  - More recently, the Security Council has failed to act to resolve crises in **Crimea, Syria and Yemen.**

Reform Proposals

- The current negotiation process is based on **Decision 62/557 which was adopted in 2008**.
- It defines five key issues for reform:
  - categories of membership,
  - the question of the veto,
  - regional representation,
  - the size of an enlarged Security Council and its working methods, and
  - the relationship between the Security Council and the General Assembly.
- On the issue of reform, the UN member states are divided into several groups. Their positions on the most important questions, membership and the veto, are as follows.
  - The **G4** consists of **Germany, Japan, India and Brazil.** The G4 mainly seek **permanent seats for themselves**, but are willing to **forego their veto rights** for fifteen years or possibly even longer.
  - The **Uniting for Consensus (UfC)** consists of various states – including **Italy, Spain, Argentina, Canada, Mexico, South Korea and Pakistan** – which oppose the G4 and the addition of any new permanent seats. The UfC would instead **add only non-permanent seats** and preferably **abolish the veto or at least restrict its use**.
  - The **African group** consists of members of the African Union. It seeks **two permanent and five non-permanent seats for Africa**. The African group would preferably **abolish the veto**, but it insists that as long as the veto exists all permanent members should possess it.
  - The **L69** consists of some **40 developing countries** from all over the world, including Brazil and India. It seeks **six new permanent seats** and **six new non-permanent seats** balanced across UN regions. Its stance on the

veto is similar to that of the African group; either the **veto is abolished or it is extended to all permanent members**.

- The Arab group consists of **22 states** and it demands a **permanent Arab seat**. It heavily criticizes the veto, but does not present any solution to it.

Attitude of P5

- France and Britain are most open to reform.
- Whilst all permanent members accept the reform in principle, they have often fought popular reform proposals.
- For example, when in 2005 it seemed that the G4 and the African group might reconcile their differences, China and Russia declared any reform to be out of the question and with the aid of the United Stated started publicly gathering support to defeat the reform attempt.
- Similarly, in 2012 intense pressure from the permanent members forced a draft resolution on improving the working methods of the Council to be abandoned.

About UNSC

- The United Nations Security Council (UNSC) is one of the six principal organs of the United Nations (UN), charged with
  - **ensuring international peace and security,**
  - recommending the admission of new UN members to the General Assembly, and
  - Approving any changes to the **UN Charter.**
- The UNSC is the only UN body with the authority to issue binding resolutions on member states.
- The Security Council was created after World War II to address the failings of the League of Nations in maintaining world peace.
- The Security Council consists of fifteen members, of which five are permanent: China, France, Russia, the United Kingdom, and the United States of America.
- Permanent members can veto any substantive resolution, including those on the admission of new member states or nominees for the office of Secretary-General.

INDIA AT UNSC

GS-II INTERNATIONAL RELATIONS

Introduction

- On the 75th anniversary of the United Nations, Prime Minister of India Narendra Modi reiterated a question that has been anguished for years: **'For how long will India be kept out of the decision-making structures of the United Nations**?'
- The syntax of 'kept out' conveyed a lot more than what was explicitly said. Four countries, ie, the **United States, Russia, Britain and France**, out of the Five permanent members of the United Nations Security Council (UNSC) are **willing to expand** the Security Council to include India, but the **dogged spoke in the wheel is China**.
- The irony is that it was the idealist-internationalism and the first Prime Minister of India, **Jawaharlal Nehru**, who in the 50's had **insisted on China getting a permanent seat** of the United Nations on priority, as part of his '**moral' imperative in foreign policy,** as also, his reading of **cold war calculus**.
- The **American suggestion and support for India'**s inclusion then, was driven by the tactical purpose of **diminishing Communist powers,** as opposed to sovereign credentials.
- India missed the golden opportunity as it **did not want to be dragged into hegemonic power struggles**, and envisaged itself as a '**moral power'** that stood for non-alignment and developing world.
- Today, **morality** in international affairs has now been unabashedly replaced by **realpolitik**, and **China is the apogee of real politik**.

India's role at UNSC

- India played an **active role** in discussions on all issues related to international peace and security, including several new challenges which the UNSC was called upon to deal with in Afghanistan, Cote d'Ivoire, Iraq, Libya, South Sudan, Syria and Yemen.
- In view of the **threat posed to international trade and security by piracy** off the coast of Somalia, India promoted international cooperation against the pirates.
- At India's initiative, the Security Council mandated international cooperation for **release of hostages taken by pirates** as well as for prosecution of those taking hostages and those aiding and abetting these acts.
- India also worked for enhancing international cooperation in **counter-terrorism, prevention of the proliferation of weapons of mass destruction to non-state actors**, and the **strengthening of UN peacekeeping and peace building efforts.**

Issues before India

- **UN Reforms:**
  - New Delhi has said it is essential that the Security Council is expanded in both the permanent and non-permanent categories.
  - India is eminently suited for permanent UNSC membership by any objective criteria, such as **population, territorial size, GDP, economic potential, civilizational legacy, cultural diversity, political system** and past and ongoing contributions to UN activities — especially to UN peacekeeping operations.
- **Terrorism:**
  - The international effort against terrorism is a **key priority for India** in the UN.
  - With the objective of providing a comprehensive legal framework to combat terrorism, India took the initiative to pilot a **draft Comprehensive Convention on International Terrorism (CCIT)** in 1996.
  - A text of the Convention is being **negotiated in the 6th Committee of the UN General Assembly.**
- **The China challenge:**
  - India is entering the UNSC at a time when **Beijing is asserting itself at the global stage** much more vigorously than ever. It heads at least six UN organizations — and has challenged the global rules.
  - China's **aggressive behavior in the Indo-Pacific as well as the India-China border** has been visible in all of 2020, and New Delhi will have to think on its feet to counter Beijing.
  - At Pakistan's behest, China has tried to raise the **issue of Kashmir at the UNSC** — but has not found much support.
  - There is some discussion among the strategic community in New Delhi on **raising the issues of Taiwan, Hong Kong and Tibet at the UNSC**.
  - New Delhi will weigh the pros and cons with partners on what steps to take in this direction.
  - But, the polarizing politics inside India gives a window of opportunity to its rivals, and opens up the possibility of criticism — especially on human rights issues.

India's Security Council Calculus:

- The Indian calculus on permanent membership of Security Council flows broadly from a mix of three streams, viz., India's historic association with the UN system itself since its independence, India's intrinsic value and place in contemporary international politics and its ambitions as a traditional great power in Asia and beyond.
- **India in UN System:**
  - India points out its rich history of consistent international, multilateral posture of cooperation and fraternity.
  - India signed the Treaty of Versailles that ended the First World War and created the League of Nations.
  - India also contributed most importantly by being instrumental in establishing the G77 of developing states at the UN, other than supporting the establishment of various bodies like UNICEF on a permanent basis, the UNDP, the UNEP, and the restructuring of the economic and social fields of the UN and the UN Development Fund.

- In the arena of peacekeeping, India has remained the largest cumulative contributor of UN peacekeeping troops with around 180,000 troops since the 1950s.
- Indian strategic interest in the Council seat has also been shaped by its history of interacting with the Security Council. India paid the price for being "idealistic" to take the Kashmir issue to the UN wherein it had to battle hard realpolitik of Cold war years leading to UN interventions over the Kashmir dispute. Indian presence at the Security Council, it is hoped will ensure Indian interests are not sacrificed at the altar of great power politics. It will stall any possible intervention by China, a permanent member at the behest of its ally Pakistan.

- **India's Intrinsic Value:**
  - By any objective criteria, such as population, territorial size, GDP, economic potential, civilizational legacy, cultural diversity, political system.
  - Demography remains the primary reason why India should be in the Council. India is the second most populous country in the world comprising almost one-fifth of humanity.
  - India's rising economic stature globally has added to Indian claims as well. India is now the fastest-growing major economy in the world, and Asia's third largest.
  - India's leading position in software and its IT-enabled services making it a global technology giant adds to its increasing economic and trade footprint across the world.
  - India's newly acquired status as a Nuclear Weapons State (NWS) in May 1998 also makes India a natural claimant as a permanent member similar to the existing permanent members who are all Nuclear Weapon States.
- **India's Great Power Ambitions:**
  - Foremost in Indian calculus lies the **Indian aspiration of the institutionalized big power status** the permanent seat in the Security Council would confer on India right away.
  - India sees itself carrying the **necessary abilities, actual and potential**, which entitles it to a permanent seat at the Council.
  - The seat on the high table, at the UN's premier, powerful body would **provide it the much needed leverage to expand its geo-political and geo-economic** clout globally.
  - It would serve as an **equalizer to China**, its rival and an emerging hegemony in Asia and an ever increasing strategic and security concern in its immediate neighborhood and beyond.
  - India has always seen itself as a **democratic alternative to the authoritarian China in a leadership role in Asia.**

Conclusion

- As India's international profile and capabilities rises due to its **ever expanding global and regional footprint** in diverse areas like politics, development, economics, and culture and science and technology, India wishes to shift its international **position from a rule taker (a constrained role) to a rule maker (a system shaping role)**.
- The Indian attempts at **joining various regimes** like the MTCR and the ongoing, high pitched campaign to join the NSG amply indicate that India is **no more satisfied with being either the target or a mere follower** of various international norms and rules and wants now to shape and align them to suit Indian ideas and interests.
- In conclusion, and most significantly, Indian hopes significantly **rest on an acknowledgement by the UN itself of the need to expand the UNSC**.
- In an interview to The Guardian (2015), former **UN Secretary-General Kofi Annan** said that the Security Council must either reform or risk becoming increasingly irrelevant: "If we don't change the council, we risk a situation where the primacy of the council may be challenged by some of the new emerging countries."

RECLAIMING SAARC

Context

- Thirty-six years after it first began, the South Asian Association for Regional Cooperation (SAARC), **appears to be all but dead in the water.** The year 2020 marked the sixth year since the leaders of the eight nations that make up SAARC were able to meet.

Pandemic-caused challenges

- Reviving SAARC is crucial to countering the common challenges brought about by the pandemic.
- Comprehensive approach for Pandemic Preparedness and Response to COVID-19 in South Asian Countries is necessary for the **distribution of vaccines**, as well as **developing cold storage chains for the vast market** that South Asia represents is needed.
- The pandemic's **impact on South Asian economies** is another area that calls for coordination.
- Apart from the overall **GDP slowdown, global job cuts** which will lead to an estimated **22% fall in revenue for migrant labor and expatriates** from South Asian countries, there is an expected loss of about 10.77 million jobs and $52.32 billion in GDP in the tourism sector alone from the impact of COVID-19.

SAARC Successes

- SAARC has tackled important topics for the region such as a social charter, development agreements and even the sensitive subject of fighting terrorism.
- **SAPTA:**
  - It was signed in 1993 and entered into force in 1995.
  - The Agreement reflected the desire of the Member States to **promote and sustain mutual trade and economic cooperation** within the SAARC region through the exchange of concessions.
  - The agreement provided for a **positive list; the trade of the items on positive list could be regulated.**
- **SAFTA:**
  - The South Asian Free Trade Area (SAFTA) is an agreement **reached in 2004** to create SAARC free trade area.
  - The members of SAARC signed a framework agreement on SAFTA to **reduce customs duties of all traded goods to zero** by the year 2016.
  - The SAFTA agreement **came into force on 1 January 2006** and is operational following the ratification of the agreement by the seven governments.

SAARC Failures

- SAARC almost f**ailed to accomplish its ambitious objectives** during the last 25 years due to the political difference, conflicts and poor economic state of the member countries. Most of the **programs and achievements exist only in official documents**.
- Their activities are only confined to **holding seminars, workshops and short training courses.**
- During the time of the worst natural calamity in Bangladesh cyclone, Pakistan earth quack and flood in Pakistan, **Food Security Reserve of SAARC** could not be used to satisfy the demands of the affected people in its 30 years of existence, **SAARC failed to hold 11 annual summits** for political reasons, both at the bilateral and internal levels.
- The **intra-regional trade of SAARC** amounted to $40.5 billion in 2011, which constitutes just **5% of member countries' trade.**
- The number pales into insignificance when compared with the volume of trilateral trade between member-countries of NAFTA, the North American Free Trade Agreement, (the US, Canada and Mexico) which hit $1 trillion in 2011.
- While different regions of the world have progressed even to monetary union, SAARC has failed to even come up with a **free trade agreement**

- Even in the Kathmandu Summit 2014, there were **three connectivity agreements on road, rail and energy**, to be endorsed by the eight SAARC leaders. Only one of these - on energy - has been signed.

Reasons for failure

- **Weak Cultural Identities**
  - The South Asian Region comprises countries sharing **common history, heritage and culture**.
  - The horrors of **divisions and sub-divisions** have however created fissures. These fissures are commonly articulated through the ideas of distinct cultures.
  - The pursuit of maintaining distinct cultural identity by every country has not allowed the region to come together.
- **Rivalry between India and Pakistan**: The two largest members of SAARC, has hovered hugely on SAARC. The rivalry continues to restrain SAARC from functioning as a sub-regional organization.
- **Border Issue:** The region is still beset with many unresolved border and maritime issues. These unresolved borders have led to problems of Terrorism, Refugee Crisis, Smuggling, and Narco-Trade. The unresolved issues continue to mar cooperative relations.
- India's ambitions in the region crisscross with **China's ambitions** to have an influence on the region. China has in past decade strengthened its relations with Bangladesh, Sri Lanka. This has led to a trust deficit in the grouping.
- **SAARC Charter Article X(2)** of the SAARC Charter mandates that decisions, at all levels in SAARC, are **only of multilateral issues**, and only those issues are for **inclusion in the agenda in a SAARC summit** meeting on the basis of unanimity. The SAARC platform thus **cannot be used to resolve bilateral issues**; this has undermined the scope and potential of SAARC.

Future option for SAARC in Pandemic

- South Asian countries should work as a **collective to set standards for labor** from the region, and also to promoting a more **intra-regional, transnational approach towards tourism**, citing successful examples including the 'East Africa Single Joint Visa' system, or similar joint tourism initiatives like in the Mekong region or the Caribbean islands.
- In the longer term, there will be a **shift in priorities towards health security, food security, and job security**, that will also benefit from an "all-of" South Asia approach.
- The impact of COVID-19 will be seen in broader, global trends: a **growing distaste for 'globalization' of trade**, travel and migration all of which were seen to have helped the pandemic spread from China, as well as a growing preference for nativism, **self-dependence and localizing supply chains.**
- While it will be impossible for countries to cut themselves off from the global market entirely, **regional initiatives will become the "Goldilocks option"** (not too hot and not too cold), or the happy medium between globalization and hyper-nationalism.
- Seen through **Beijing's prism,** India's SAARC neighborhood may be a means to contain India, with the People's Liberation Army strategies against India over the LAC at present, or in conjunction with Pakistan or Nepal at other disputed fronts in the future.
- **New Delhi must find its own prism** with which to view its South Asian neighborhood as it should be: a unit that has a **common future, and as a force-multiplier for India's ambitions** on the global stage.

- The South Asian Association for Regional Cooperation (SAARC) is the regional intergovernmental organization and geopolitical union of states in South Asia.
- Its member states are **Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.**
- The SAARC comprises **3% of the world's area, 21% of the world's population** and 4.21% (US$3.67 trillion) of the global economy, as of 2019.
- The SAARC was founded in Dhaka on 8 December 1985.
- Its secretariat is based in **Kathmandu, Nepal.**

Context

- India enters 2021 with the challenge of strengthening ties and building new ones with the US, EU, Middle East countries, and its neighbors. The New Year presents India an opportunity to emerge as a global rather than an aspirational player. A reflection of events shows India faced seven hard realities in 2020, and has to deal with six challenges and opportunities in 2021.

Hard realities: 2020

1: China aims for top

- A country which, under President Xi Jinping since 2013, had been **consolidating its global influence**, saw an opportunity in a world distracted with the pandemic.
- While it was targeted initially for being the **source of the coronavirus**, Xi's regime turned around and started to **flex its muscle in the region.**
- The **Indo-Pacific** was its playground, where Chinese naval or militia forces rammed a Vietnamese fishing boat, "buzzed" a Philippines naval vessel, and harassed a Malaysian oil drilling operation. It even tried to arm-twist Australia through trade curbs.
- And since May, Chinese troops have **altered the status quo along the border with India**, claimed the lives of 20 Indian soldiers, and violated every agreement to maintain peace.

2: 'Trump Americans'

- Over the last four years, the **US vacated the leadership space at the world stage** under the Donald Trump Administration.
- It walked out of or **weakened almost a dozen multilateral bodies** or agreements, from the Iran deal to the WHO.
- Once Joe Biden takes over as President, the US is expected to **reclaim the space vacated by Trump**.
- Going forward, America will not be defined by the Democrats or by the Republicans. It will be defined by the Trump Americans. Beyond the optics, the Trump Americans, who are the new political base, will still shape American policy irrespective of who the president is.

3: Acceptance for Taliban

- Having invaded Afghanistan 19 years ago trying to root out the Taliban, the **US finally made peace with them** as it looked to exit.
- For India, this meant a **beginning of the process of re-engaging with the Taliban,** and New Delhi reached out with External Affairs minister S Jaishankar's attendance through virtual mode and a senior Indian diplomat in Doha.
- Signaling long-term commitment to Afghanistan's future — under Taliban or other political forces — **India has committed $80 million, over and above its $3 billion commitment** in the last two decades.
- New Delhi too is finally looking at the **Taliban as a political actor,** although it is controlled by the Pakistan military.

4: Middle East equations

- The **US-brokered rapprochement** between **Israel and four Arab countries** — the UAE, Bahrain, Morocco and Sudan — reflected the changing landscape in the region.
- With **Saudi Arabia and Iran competing for leadership**, along with **Turkey**, in the Islamic world, there have been growing calls for ties with Israel.
- New Delhi has been ahead of the curve, cultivating ties with Israel as well as Saudi-UAE and the Iranians with deft diplomacy.

- But it has to be **careful to not let its gains get impacted by polarizing politics at home** — be it through the CAA-NRC or religious fault-lines.

5: Russia-China bonding

- Brewing for the last three decades, ties between Russia and China got closer in 2020.
- This has been possible also due to the **US's anti-Chinese rhetoric, collapse of oil prices and Russia's dependence on Chinese consumption.**
- India has strong ties with Russia, and Moscow was the venue for all the India-China official and ministerial conversations over the border standoff.
- But, it has taken note of Moscow's position on the Quad and Indo-Pacific, a near-echo of Beijing's stance.

6: Assertive neighbors

- The year began with Bangladesh asserting itself on CAA-NRC, and then Nepal claiming territory and issuing a new map.
- It brought home the reality that neighbors are no pushovers.
- New Delhi had moved to build bridges with both, wary of an active Beijing. Bangladesh pushed back, and India did not notify the CAA rules.
- India also watched closely the US and Chinese forays with Maldives and Sri Lanka.
- India appears to have made peace with the involvement of the US in Maldives, and that of Japan in Sri Lanka and Maldives.

7: Aspirational India

- India's public articulation of **"self-reliance"** and refusal to sign trade pacts with RCEP countries was widely perceived as "**isolationist" and "inward-looking"**.
- India did step up to **supply medicines and protective kits to more than 150 countries**, but did not come across as the global leader the world needed at this time.
- **Lack of resources**, a **contracting economy** and its **populist politics** made it come across as an aspirational power.

2021: Challenges, opportunities

1: Countering China

- India's response to the **border standoff** has been guided by a thinking that one has to stand up to the bully.
- The standoff has **reinforced Nehru's belief in 1963** that India needs **"external aid in adequate measure"**.
- India will need continuing support from the **US, Japan, Australia, besides Europe leaders such as France, Germany and the UK**.

2: High table at UN

- As India enters the UN Security Council as a **non-permanent member for the eighth time**, stakes are high in the wake of this leadership contest between China and the rest of the world.
- India will have to **take positions on issues it had carefully avoided** — from **Tibet to Taiwan**, from **Iran-Saudi rivalry** to the refugee crisis between Bangladesh and Myanmar.
- While cross-border terrorism is one of the top concerns and India will work towards **isolating Pakistan** further, a limited fixation on the western neighbor would distract from India's aspirations of being a global leader.

3: Friendship with US

- Much is expected from the **Biden Administration for building on Indo-US ties**, but a lot will depend on how the US views China in the larger scheme of things.
- Moves towards a possible **US-China trade deal** will be watched by **South Block closely**.
- One of the key tests will be the f**uture of Quad, and the Indo-Pacific strategy** of the new administration.

- New Delhi will build on its deepening strategic and defense ties with the US, and would want to resolve trade and visa issues.

4: Wooing Europe

- The UK and the EU agree on a deal, India will look ahead to negotiating a deal with the UK and a long-pending one with the EU.
- In May, there is a possibility of an India-EU summit. Already, France and Germany have come up with their Indo-Pacific strategy, and a potential European strategy is a possibility, but an EU-China trade deal would be dissected by Indian negotiators.

5: Engaging with neighbors

- **China's** growing **economic footprint** in India's neighborhood is a concern.
- While it is being played out in **Nepal**, India will also watch China's moves in the rest of the subcontinent.
- Its moves in **Iran** were closely watched.
- One of the important aspects of 2021 is that, while there is a churning in Nepal, almost every South Asian country has had elections in the last couple of years. That means the governments in these countries are stable.
- As the world emerges from the pandemic, New Delhi has a lot to gain from what could be **"vaccine diplomacy" with neighbors in 2021** — supplying vaccines either free or at affordable costs.

6: Global, not just aspirational

- India has played the role of an emerging power — with ambitions to play the role of a global power.
- In 2021, New Delhi will host the **BRICS summit**, and start its preparations for the **G-20 summit in 2023.**
- And the **India-Africa Forum summit**, which could **not be held in 2020**, could be held in 2021 or later.
- **New Delhi** has opportunities to articulate and be vocal on issues that matter to the world, and be proactive to further its interests.

INDIA-GCC RELATIONS

GS-II INTERNATIONAL RELATIONS

Context

- India's relations with the Gulf Cooperation Council (GCC) countries, especially **Saudi Arabia and the United Arab Emirates (UAE) across the areas of trade, investments, counter-terrorism and security cooperation.**
- Regional and international developments, including the rise of Islamic State **(ISIS), China's growing regional footprint**, as well as **heightened tensions over Iran's nuclear program**, also contributed to amplifying the importance of the GCC states in India's foreign policy calculus.
- The growing ties, however, had to endure the **impact of the COVID-19 pandemic.**

Economic impact

- Globally, COVID-19 negatively impacted both the **flow of people and trade.** Due to the curtailed economic activity, India-GCC bilateral trade was seriously affected.
- The total trade between India and GCC during April and October 2020, was **$39.98 billion,** with the share of GCC in India's foreign trade during the period being **12 per cent.**
- During the same period in 2019-20, the share of India-GCC trade was about **33 per cent of India's total foreign trade**.
- **Petroleum imports**, the most important commodity in the bilateral trade, were also seriously affected.
- India's oil imports from the GCC between April and October 2020 was worth $17.5 billion, 37.65 per cent of India's total. In 2019-20, India had imported $55.61 billion worth of petroleum from the GCC.

- On the brighter side, despite the pandemic and the ensuing adverse effect on the economy, the **foreign direct investments (FDI)** from the GCC countries into India **witnessed a significant jump during the first six months** of the FY 2020-21.
- A total of $30 billion in FDI came from the GCC countries during this period, comprising **13 per cent of the total FDI inflows into India**.
- Compared to 2019-20, this was a huge upswing when the total FDI from the GCC countries to India was $522.59 million, comprising **only 1 per cent of the total FDI received** by India.
- The worst affected due to the lockdowns and economic disruptions were the over **nine million strong Indian expatriate community** in the GCC countries. A section of workers **lost their jobs** while some were stranded in crowded and unhygienic labor camps without social distancing and with limited resources.

New possibilities

- There is immense scope for investments in the healthcare and the pharmaceutical industries.
  - India is already a popular regional destination for **medical tourism.**
  - **Digital healthcare services** are an area that are likely to witness immense growth in the near future.
  - It fits well into Government of India's initiative to develop the industrial and manufacturing base in India under the **Atmanirbhar Bharat program**.
- **Higher education** is an area that remains **under-exploited**, despite the potential for enhanced cooperation.
  - Given that the Indian '**Institutions of Eminence'** have now been given the **green signal to set up branches outside India**, 26 IITs and IIMs should look for possibilities for opening branches in the GCC countries.
  - India should also make concentrated efforts to **attract students from Gulf countries to join its higher educational institutions** for professional courses.
- There are immense possibilities for cooperation in the field of **defense manufacturing**.
  - The Government of India has in May 2020 increased the limit for FDI in defense manufacturing industry from 49 per cent to 74 per cent through direct route, while 100 per cent FDI is possible through government route.
  - This can be a major area to attract investments, especially as the GCC countries are among the world's top defense importers.
- Niche areas such as **space exploration, artificial intelligence, cyber security, bioinformatics, renewable energy** etc. can be the new areas for cooperation between India and GCC countries.
  - The UAE is fast emerging as a space exploration leader in the Arab world.
  - The GCC countries, including the UAE and Saudi Arabia, have in recent years invested significantly in the renewable energy sector.
  - India, being an energy-deficient country with a walloping hunger for energy, should explore possibilities for enhancing cooperation in this sector.

Conclusion

- The COVID-19 pandemic has impacted bilateral ties between India and GCC countries in a significant manner.
- While trade relations and Indian expatriates were negatively impacted, the flow of investments from GCC to India witnessed an upswing.
- The cooperation and coordination in the fight against the pandemic was an important positive underlining the strong bilateral bonds. A continuity in terms of political and diplomatic contacts through digital meetings, telephonic conversations and virtual diplomacy, was notable.
- In the last two months of 2020, India undertook concentrated efforts to rejuvenate its relations with GCC countries. It is now time for India and GCC to start looking beyond the pandemic to develop cooperation in new and emerging areas, identified above, and tap the infinite potentials for further strengthening the bilateral relations.

AGRI-FOOD POLICY FOR INDIA

Context

- India needs to frame an **optimal agri-food policy** to address both short-run and long-term challenges.

Status

- The agriculture sector employs **nearly half of the workforce** in the country. However, it contributes to **17.5% of the GDP (at current prices in 2015-16)**.
- Over the past few decades the agriculture sector's contribution has **decreased from more than 50% of GDP in the 1950s to 15.4% in 2015-16** (at constant prices).
- India's production of food grains has been increasing every year, and India is among the top producers of several crops such as wheat, rice, pulses, sugarcane and cotton.
- It is the highest producer of milk and second highest producer of fruits and vegetables.
- **Agricultural growth** has been **fairly volatile over the past decade**, ranging from 5.8% in 2005-06 to 0.4% in 2009-10 and -0.2% in 2014-15. Such a variance in agricultural growth has an i**mpact on farm incomes** as well as **farmers' ability to take credit for investing in their land holdings.**

Factors affecting agricultural productivity

- **Increase in small land holdings:**
  - **140 million hectare** of land is used as an agricultural area as of 2012-13. Over the years, this area has been **fragmented into smaller pieces of land**.
  - The number of marginal land holdings (less than one hectare) **increased from 36 million in 1971 to 93 million in 2011**.
  - Marginal and small land holdings face a number of issues, such as problems with using **mechanization and irrigation techniques.**
  - **Land records and informal leasing:**
    - Of the total agricultural area under operation, **10% of land has been given out on agricultural leases**, with the percentage of leased out land varying across states.
    - In the past, states such as Karnataka and West Bengal have attempted to provide **legal rights to tenant farmers by forming electronic records** of land holdings and giving tenant farmers the right to their produce.
    - Currently, **laws of tenancy of agricultural land** vary across different states.
    - The NITI Aayog has proposed a **Model Land Leasing Law** to provide for the **legalization of land leasing**. This would ensure that landowners have the **security of ownership rights, and land tenants are secure in their tenancy**.

E-Bhoomi project in Karnataka:
- The E-Bhoomi project was started by the Government of Karnataka in the early 2000s.
- The project aims to computerize existing land records and create a transparent system for changing land records and dividing or merging plots of land.
- Under the system, farmers can collect land record information for their plot at the Tehsil level, called Pahani. These records would contain information such as the survey number of the land, land owner's details, the classification of the soil, and details regarding irrigation and crops grown, among others.

- **Access to agricultural credit and insurance:**
  - Access to agricultural credit is linked to the holding of land titles.
  - Small and marginal farmers, who account for **more than half of the total land holdings**, and **may not hold formal land titles**, are unable to access institutionalized credit.

- Farmers with land holdings of less than a hectare primarily borrow from **informal sources of credit such as moneylenders (41%),** whereas those with land holdings of two or more hectares primarily borrow from banks (50% or more).
- Key issues relating to agricultural credit are lack of access to formal credit owing to **unclear land records, skewed ratio between short term and long term agricultural credit, and inadequate access to crop insurance**.
- **Short term and long term credit:**
  - Short term credit is generally taken for **pre-harvest and post-harvest activities** such as weeding, harvesting, sorting and transporting.
  - **Long term credit** is generally taken in order to **invest in agricultural machinery and equipment, irrigation** and other developmental activities, etc.
  - As of 2011-12, **61% of crop credit was short term**, whereas **long term credit had a share of 39%.**
  - **Small and marginal farmers**, who account for about 86% of total land holdings, **take more short term loans** than farmers with medium or large land holdings.
- **Inadequate access to crop insurance:**
  - As of 2011, about **10% of Indian farmers were covered under a crop insurance scheme**. Some persistent issues with the crop insurance system include

- unawareness about insurance schemes,
- inadequate coverage of insurance schemes,
- assessment of the extent of damages in case of crop losses, and
- timely settlement of claims.

- **Availability of water:**
  - Currently, about **51% of the agricultural area** cultivating food grains is covered by irrigation. The rest of the area is dependent on **rainfall (rain-fed agriculture)**. Sources of irrigation include **ground water (wells, tube-wells)** and **surface water (canals, tanks)**.
  - The past few decades has led to an **overuse of groundwater sources** in states, especially those growing water **intensive crops such as rice**.
  - The **Commission for Agricultural Costs and Prices** has recommended that **quantitative ceilings** should be fixed on the per hectare use of water.
  - **Micro-irrigation techniques:**
    - The **Economic Survey 2015-16** observed that India largely uses the technique of **flood irrigation**, where water is allowed to **flow in the field and seep into the soil**.
    - This results in the **wastage of water**.
    - It has been recommended that farmers should move from **flood irrigation to the drip or sprinkler irrigation systems (micro irrigation)**. This would help in **conserving water as well as save on the cost of irrigation**.

The Ministry of Water Resources circulated a **Model Bill for Groundwater, 2016,** which may be adopted by states. The Bill provides an **institutional framework** for the protection and management of groundwater. It states that groundwater is a **common resource of all persons,** and ownership of the land over a groundwater resource should **not deprive others from accessing it.** It also states that **industrial or bulk usage of groundwater will be priced.**

- **Soil and fertilizers**
  - While the levels of food **production have increased** over the past few decades, it has also led to issues such as an **imbalance of nutrients in the soil**, **decline in the water table** as well as the **quality of water, and overall depletion of soil health**.
  - **Imbalance in the use of fertilizers** in soil may also result in a loss of fertility. I
  - It has been observed that urea is used more than other fertilizers. While the **recommended ratio of use of the NPK fertilizers is 4:2:1**, this **ratio in India is currently at 6.7:2.4:1**.
- **Access to quality seeds**

- Quality seeds is another input necessary for agricultural productivity, and good quality seeds **account for 20%-25% of increased crop productivity**.
- Seeds are regulated by the **Seeds Act, 1966**.
- Three varieties of seeds commonly used are
  - farm-saved seeds, which account for 65%-70% of the total seeds consumption,
  - commercially produced seeds of the breeder, foundation and certified varieties, and
  - Genetically modified and hybrid seeds.

- **Agricultural machinery**
  - The use of agricultural machinery in agriculture enables **agricultural labor to be used in other activities**.
  - It makes activities such as **tilling, spreading of seeds and fertilizers and harvesting more efficient**, so that the cost of inputs is offset.
  - The status of mechanization in agriculture varies for different activities, although the overall level of **mechanization is still less than 50%, as compared to 90% in developed countries.**
  - Some challenges faced by farm mechanization include **different soil and climatic zones which require customized farm machinery**, and **small land holdings with lack of access to resources**.

Post-harvest activities

- **Storage facilities**
  - After agricultural produce is harvested, it requires a **robust storage infrastructure**.
  - The quantity of food which is wasted during the harvest and post-harvest processes in the country has increased over the past five years.
  - The highest losses are observed in the case of **fruits and vegetables (4.6%-15.9% of production in 2015), pulses (6.4%-8.4%) and oilseeds (5.3%-9.9%)**.
  - Food wastage occurs at all levels of farming- the **farmer, transporter, wholesaler and retailer**. Some of the reasons for this wastage are **crop damage, improper harvesting techniques, poor packaging and transportation, and poor storage**.
  - Some of the issues with the state of storage facilities in the country are **inadequate capacity and poor conditions of storage**.
- **Agricultural Pricing**
  - The Food Corporation of India is responsible for the **purchase, storage, movement, distribution and sale** of agricultural produce.
  - Minimum Support Prices are the prices at which the government purchases food grains from farmers.
  - About a **third of the wheat and rice produced** in the country is procured by the central government.
- **Minimum Support Prices (MSPs)**
  - High MSPs of crops provide **incentives to farmers to adopt modern technologies** and **farming practices**, to increase the overall productivity of their crops.
  - Since procurement is mainly carried out for wheat and rice, **farmers have focused on the cultivation of these crops over other crops** such as pulses and oilseeds.
- **Agricultural markets:**
  - Agricultural markets in the country are regulated by state Agricultural Produce Marketing Committee (APMC) laws. Under these state Acts, farmers are required to sell their produce at state-owned mandis.
  - Over the years, several issues have been highlighted in this system. For instance, APMC mandis currently levy a market fee on farmers who wish to sell their produce in the mandis.
  - This makes it expensive for farmers to sell at APMC mandis.
  - In addition, farmers have to arrange for their produce to be transported from their farms to the nearest mandi, which brings in costs such as transport and fuel.
  - In transporting the produce from the farm to the store, several intermediaries are involved.
  - In this context, central government brought 3 new farm laws:
- **Farmer's Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020:**

- This bill allows farmers to engage in trade of their agricultural produce outside the physical markets notified under various state Agricultural Produce Marketing Committee laws (APMC acts). Also known as the 'APMC Bypass Bill', it will override all the state-level APMC acts.

- **Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services Bill, 2020:**
  - The bill seeks to provide farmers with a framework to engage in contract farming, where farmers can enter into a direct agreement with a buyer (before sowing season) to sell the produce to them at predetermined prices.
- **Essential Commodities (Amendment) Act, 2020:**
  - It removes foodstuff such as cereals, pulses, potato, onions, edible oilseeds, and oils, from the list of essential commodities, removing stock holding limits on agricultural items produced by Horticulture techniques except under "extraordinary circumstances"
  - It requires that imposition of any stock limit on agricultural produce only occur if there is a steep price rise.

Recommendation for new policy

- Such a policy must have at least four touchstones.
- It should be able to **produce enough food, feed and fiber** for its large population.
  - In this regard, the best step is to invest in **R&D for agriculture, and its extension from laboratories to farms and irrigation facilities.**
  - It is believed that **developing countries should invest at least one per cent of their agri-GDP in agri-R&D and extension. India invests about half.**
- It should do so in a manner that not only **protects the environment** — soil, water, air, and biodiversity — but achieves **higher production with global competitiveness**.
  - This can be done by switching from the **highly subsidised input price policy** (power, water, fertilisers) and **MSP/FRP policy for paddy, wheat and sugarcane**, to more income support policies linked to saving water, soil and air quality.
- It should enable seamless movement of food from farm to fork, keeping marketing costs low, save on food losses in supply chains and provide safe and fresh food to consumers.
  - This segment has been crying for reforms for decades, especially with respect to **bringing about efficiency in agri-marketing and lowering transaction costs**.
- The public distribution of food, through PDS, that relies on rice and wheat, and that too at more than **90 per cent subsidy over costs of procurement, stocking and distribution**, is not helping much.
  - There is a need to put the **full food subsidy bill in the central budget** rather than putting it under the carpet of **FCI borrowings.**
  - But, more importantly, **beneficiaries of subsidised rice and wheat** need to be given a choice to opt for cash equivalent to MSP plus 25 percent.

K-SHAPED ECONOMIC RECOVERY

GS-III ECONOMY

Background

- The **Economic Survey 2021**, predicted a 'V' shape recovery. The Survey projects the real economy to grow at **11 per cent in 2021-22**.
- Two more reports, **RBI's Financial Stability** and **NSO's first advance estimates**, hinted at V shape recovery. As per NSO, the real GDP contracted by 7.5 per cent in Q2 of 2020-21, compared to a whopping 23.9 percent during Q1.
- This recovery in the average GDP is upwardly biased and doesn't capture the typical median income of households. It simply means that the income of richer households is several times greater than those of the poorest households.

Deteriorating employment

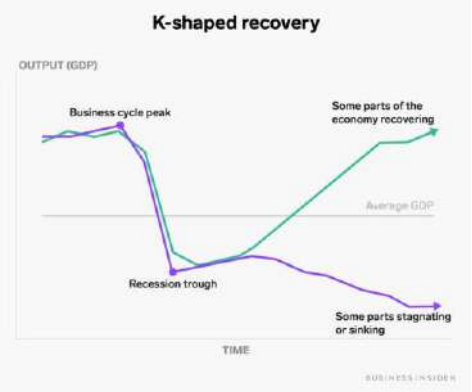
- CMIE's CPHS survey showed that **employment fell by 20 percent and 3.5 percent** in the June and September quarters respectively.
- A study conducted by researchers at Azim Premji University, using the CPHS survey finds that while **80 percent of pre-Covid workforce is back in employment**, the **structure of employment has changed dramatically**.
- For instance, younger and women workers have lost their jobs and are still struggling to find employment.
- A World Bank report, using CPHS data, highlighted that the recovery was uneven and changed the pattern of the employment by shifting (30 percent) workforce into informal employment, particularly self-employment.

Consumption remains depressed

- The last few decades have witnessed the **share of employment**, including self-employment, in sectors with **low real wages, productivity and profits increasing.**
- The implication with **high wages and profits** for a few at the **top and stagnant wages and profits for the majority** at the bottom. The economic gains have mostly **flowed through various channels to households** in the top percentile of the income distribution. Households in the bottom were always vulnerable.
- Unfortunately, the sector impacted by the pandemic are the ones with a large share in employment and hence income and job losses are hurting majority households. The resulting **income losses have reduced household consumption** which makes up almost two-thirds of India's GDP.

What is a K-shaped recovery?

- A K-shaped recovery happens when **different sections** of an economy recover at starkly **different rates.**
- Households at the **top of the pyramid** are likely to have seen their in- comes largely **protected,** and savings rates forced up during the lockdown, increasing 'fuel in the tank' to drive future consumption.
- Meanwhile, **households at the bottom** are likely to have witnessed permanent hits to jobs and incomes.



Macro implications

- **Upper-income households** have **benefitted** from higher savings for two quarters.
- The extent that households at the bottom have experienced a permanent loss of income in the forms of jobs and wage cuts, this will be a recurring **drag on demand,** if the labour market does not heal faster.
- Second, to the extent that COVID has triggered an **effective income transfer from the poor to the rich**, this will be **demand-impeding** because the poor have a higher marginal propensity to consume (ie they tend to spend (instead of saving) a much higher proportion of their income.
- Third, if **COVID-19 reduces competition or increases the inequality** of incomes and opportunities, it could **impinge on trend growth in developing economies** by hurting productivity and tightening political economy constraints.

The way forward

- The fiscal stimulus provided by the government for revival has largely proven to be inadequate. It's magnitude — ₹20 lakh crore and 10 percent of GDP — was huge, but the **breakdown of the spending is biased towards business and less supportive of households.**
- The funds that can directly support the households comes to **0.8 percent of the GDP.**
- Given the three wheels of the Indian economy — **consumption, investments and exports** — have come to a complete halt, the only way to support the economy is for the government to support effective demand.
- So far, the government has restrained from acting as the borrower of last resort and transferring the money to households, fearing a breach of fiscal deficit and increasing debt to GDP ratio. An **expansionary fiscal policy is the need** of the hour. If the government could **increase its net borrowings and spend that money on Capex**,

meaningful infrastructure creation-rural roads, districts hospitals, farm gate infrastructure, urban job creation etc.

- These injections will be **demand stimulating and would crowd in private investments**. However, if the new spending is largely **channelized towards the revenue side of the Budget** i.e. revenue deficit, this would hamper growth and push the economy towards stagflation- high inflation and suboptimal growth.

Note: Read about Economic Curves here: https://www.iasgyan.in/blogs/important-economic-curves-for-upsc

BAD BANKS

GS-III ECONOMY

Context

- As the problem of non-performing assets persists in a sector stressed by the pandemic, the RBI Governor has agreed to look at a proposal for creating a bad bank.

NPA

Categories of NPA	Criteria
Non-Performing Assets	Principle or Interest remained overdue for 90 days
Substandard Assets	Assets as NPAs for 12 months or less
Doubtful Assets	Substandard assets for 12 months or less
Loss Assets	Loss identified by the bank or the RBI, loan has not been not completely written off

- Non-Performing assets (NPAs) are recorded on a bank's balance sheet after a prolonged period of non-payment by the borrower.
- NPAs place financial burden on the lender; a significant number of NPAs over a period of time may indicate to regulators that the financial health of the bank is in jeopardy.
- NPAs can be classified as a substandard asset, doubtful asset, or loss asset, depending on the length of time overdue and probability of repayment.

NPA issue in the wake of the pandemic

- The RBI noted in its recent Financial Stability Report that the gross NPAs of the banking sector are expected to shoot up to **13.5% of advances by September 2021, from 7.5% in September 2020,** under the baseline scenario, as "a multi-speed recovery is struggling to gain traction" amidst the pandemic.
- The **K V Kamath Committee,** which helped the RBI with designing a one-time restructuring scheme, also noted that corporate sector debt worth Rs 15.52 lakh crore has come under stress after Covid-19 hit India.
- The panel has said companies in sectors such as **retail trade, wholesale trade, roads and textiles are facing stress.**
- Sectors that have been **under stress pre-Covid include NBFCs, power, steel, real estate and construction**. Setting up a bad bank is seen as crucial against this backdrop.

Bad bank

- A bad bank conveys the impression that it will **function as a bank** but has **bad assets to start with.**
- Technically, a bad bank is an **asset reconstruction company (ARC)** or an asset management company that **takes over the bad loans of commercial banks**, **manages them** and **finally recovers the money over a period of time**.
- The bad bank is **not involved in lending and taking deposits**, but **helps commercial banks clean up their balance sheets and resolve bad loans**.
- The takeover of bad loans is **normally below the book value** of the loan and the bad bank tries to recover as much as possible subsequently.

Need of bad bank

- The idea gained currency during Rajan's tenure as RBI Governor. The RBI had then initiated an **asset quality review (AQR) of banks** and found that **several banks had suppressed or hidden bad loans** to show a healthy balance sheet.

- **ARCs have not made any impact** in resolving bad loans due to many procedural issues.
- Now, with the **pandemic hitting the banking sector**, the RBI fears a spike in bad loans in the wake of a six-month moratorium it has announced to tackle the economic slowdown.

Will a bad bank solve the problem of NPAs?

- Despite a series of measures by the RBI for better recognition and provisioning against NPAs, as well as massive doses of capitalisation of public sector banks by the government, the **problem of NPAs continues in the banking sector,** especially among the weaker banks.
- As the Covid-related stress pans out in the coming months, proponents of the concept feel that a **professionally-run bad bank**, **funded by the private lenders** and **supported by the government**, can be an effective mechanism to deal with NPAs.
- The bad bank concept is in some ways **similar to an ARC** but is **funded by the government initially**, with banks and other investors co-investing in due course.
- The presence of the government is seen as a means to speed up the clean-up process.
- Many other countries had set up institutional mechanisms such as the **Troubled Asset Relief Programme (TARP) in the US** to deal with a problem of stress in the financial system.

Other Models

- It would be better to limit the objective of these asset management companies to the orderly resolution of stressed assets, followed by a graceful exit.
- Two models under consideration to solve the problem of stressed assets.
  - The first is a **private asset management company (PAMC)**, which is said to be suitable for stressed sectors where the assets are likely to have an economic value in the short run, with moderate levels of debt forgiveness.
  - The second model is the **National Asset Management Company (NAMC)**, which would be necessary for sectors where the problem is not just one of excess capacity but possibly also of economically unviable assets in the short to medium terms.

CENTRAL BANK DIGITAL CURRENCY

GS-III ECONOMY

Context

- In recent years, many **proposals for digital money** have appeared to facilitate the turn away from cash and a few systems are already in operation.
- The **rise of blockchain** and the **simultaneous development of crypto currencies and mobile payment systems** have fuelled a new wave of both excitement and skepticism at the same time.
- The **disruptive potential of electronic money and the system of distributed ledgers** (DLT) that underpins it has garnered interest from central banks and private financial institutions alike.

Future of digital currency

- Virtual cash is seen as a **double-edged sword** mainly because of its **fundamentally transnational character**. It holds promise as there are **efficiency gains** to be had in terms of tapping unexplored commerce and investment avenues.
- Monetary and financial transactions could be boosted by the **ease of access and the sheer resilience of the technology**. The transition also presents enormous potential in the sphere of policy.
- But the risks are dire as well, although some concerns may be premature. Governments have been grappling with issues like **financial data security, tax evasion and money laundering**, and the l**ikelihood of disturbances in money supply and exchange rates**.

Central Bank Digital Currency

- One issue is a particularly major sticking point for central banks. There is a tacit realization that **abandoning control over monetary policy is not an option**. So to defend their turf and prevent extreme decoupling, central

banks are keen on **designing their own network of digital payments** by officially issuing what is called a Central Bank Digital Currency or CBDC.

- The novelty of such general-purpose CBDCs lies in its character of being legal tender. This transition can contribute to **diversity and innovation in the payment market**.
- Designed to be a completely safe virtual store of value, such a system would be universal, freely convertible into cash at a fixed rate, and subject to pre-defined policy norms.
- At the same time, it is **meant to be denominated in local currency**, which would **bear interest on the central banks' balance sheet**.

Motivation behind CBDCs

- A fully functional CBDC has never been implemented anywhere, partly because of technological handicaps. Hence, given the **absence of empirical data**, it is difficult to estimate the **true costs associated with such a transition**.
- Gauging the **efficacy of monetary policy** under such conditions is another big challenge. Naturally, the official views on issuing CBDCs, in light of these uncertainties, have been mixed so far.
- Yet **four-fifths of all central banks** are said to be involved in researching options for designing suitable CBDCs. Early on, central bankers were hesitant but growing familiarity with the idea has helped. According to a report by the **Bank for International Settlements**, central bankers around the world are **growing more optimistic about the eventual efficacy** of CBDCs.
- Truth be told, if private digital currencies are allowed to dominate the ecosystem, there is more than a slight chance that these could eventually **replace the legal tender cash**.

Global Approach

- Central banks and governments have been paying close attention to these developments. The **desirability of CBDCs is understandable** in this context. But central banks, besides having to prevent crashes and failures, first need to ensure the **integrity of their networks to facilitate the gradual shift away from cash**.
- Countries like **China and The Netherlands** have already started experimenting with their digital fiat albeit on a limited scale. **Sweden** is likely to follow suit with its e-krona.
- Central banks increasingly look to draw on **lessons offered by crypto currencies and private digital-payment systems**. They undoubtedly want to tap the **efficiency gains** and harness the **resilience of the technology.**
- **'Permissioned' systems** are expected to do away with the **fully decentralized ones** but still retain some of the latter's advantages.
- On the **technical front**, so far the main focus of central banks has been on **reducing transaction costs** and making the **CBDC platforms more programmable**.
- The Dutch Central Bank (DNB), especially, is embracing the need for **anonymity that crypto-enthusiasts adore.** But the big question that lurks is whether or not CBDCs can add reasonable value to the economy.

Opportunities and risks

- Central banks could perhaps **target monetary stimulus better** as individual beneficiaries and vulnerable sections could be **identified quickly and assisted** during times of economic stress.
- They may also be able to earmark account **top-ups for designated purposes**. But adding all these features could bring in complications and **affect the ease of access** and **undermine the ready fungibility of money**.
- Also, these extensive powers with the central bank may **spark privacy concerns**, especially **authoritarian governments** that can use it to keep track of all transactions and exercise more control over the public.
- **Implications for monetary policy:**
    - For advanced economies, **negative interest rates may become easier to implement** as digital fiat can be directly programmed to do so. That is, assuming physical cash is done away with.
    - Otherwise, **savers could just hold physical cash**. It pays to note that **deeply negative rates can undermine confidence** in the currency and prompt a **rush to gold or other such assets.**

- There is an additional concern that if the public is allowed to convert their deposits into their CBDC accounts, **commercial banks may be robbed of their primary funding source**.
- **Depletion of demand deposits** from the banking system would mean a forced reliance on costlier alternatives like wholesale funding.
- Moreover, the **central bank could be compelled to accept the risky role** of a financial intermediary during times of crisis, as all funds are likely to flow into its books.
- **Issuance and withdrawal limits** could perhaps help address some of these vulnerabilities, but not all.

Conclusion

- As far as the trans-nationality of electronic money is considered, **national jurisdictions and the broader cyberspace** could conflict over monetary control soon.
- At its extreme, its ability to **flow too freely across borders compared to traditional currencies** could create instability internationally.
- Hence, there is a **temptation to enact deep regulations** concerning the use of money and at the same time construct parallel structures to exert more control over cyberspace.
- Although some form of control is inevitable, the **international financial community is likely to be wary of digital bureaucracies**.
- The broader cyberspace that hosts such platforms is **notorious for its lack of transparency, security threats, and potential for malevolent activities**.
- And technology failures are commonplace, especially in the government. But besides these vexing challenges, **digital fiat opens up a world of welfare-enhancing possibilities**.
- Like any innovative idea, **CBDCs are not devoid of risks**.
- **Digital cash will have to be scrutinized** and improved along the way. Central banks could cherish new flexibilities in policy but are wise to be treading a cautious path.
- Finally, **user preferences will undoubtedly be a crucial factor** in determining the macroeconomic effects of CBDCs.
- On the technical front, first, the focus must be on **developing and enhancing the accessibility of CBDCs.**

POST-PANDEMIC ECONOMIC RECOVERY

GS-III ECONOMY

Context

- Economies across the world plunged into deep contractions in the April-June quarter of 2020. For India, the fall in real **GDP in the quarter was the record lowest at 23.9 percent.** The contraction continued in the **second quarter at -7.5 percent.**

Background

- Even before the pandemic, the **economy was already slowing down**, with deficiencies evident in both **consumption and investment demand**. Consumption and investment have been the main drivers of growth in India in recent times.
- Despite repeated attempts to bolster **manufacturing, the sector failed to grow,** leaving services to step up.
- It is a widely held view that every crisis also presents an opportunity. Given the prevalence of inequality in Indian economy, the implementation of a **fiscal stimulus across sectors will not only lift the economy out** of the woods, but also **address some of the existing distortions** in income and wealth distribution.

Analysis of Aggregate Demand:

- **Consumption demand** is the largest contributor to GDP, and its growth was already stagnating before the pandemic. Any further deterioration will exacerbate the demand problem.
- **Growth rates of investment demand**, in a similar trend, plunged into the negative zone before the pandemic hit the economy. Before the pandemic, the economy was operating below full capacity and therefore an investment slump was largely expected.
- **Government consumption expenditure** rose steadily but it is not in a position to make up for the slump in the previous two components.
- **Net exports**, as a demand driver, will not be able to revive the GDP in the short run if all other current global economic environment factors remain largely unchanged. There may be improvement in those external factors, but immediate prudence lies in not banking too much on that and subsequent miraculous revival of high export growth.

Evaluation of the eight principal sectors of the economy:

- **Agriculture, forestry and fishing** is the only sector with positive growth. This is a good development for the economy, but revival cannot be agriculture-based under current circumstances. Manufacturing has to come out of its slowdown.
- **Financial, real estate and professional services** are relatively less badly affected and should recover in reasonable time. But the recovery will be dependent on industrial and consumer demand recovery.
- The same is true for **construction and internal trade, tourism, transport, communication sectors.** Though construction shows signs of rebound, tourism is likely to suffer the most. That may eclipse some possible gains in communication during the pandemic.
- **Electricity, gas, water and public utility services and public administration, defense and other services** are likely to get back to normalcy sooner than other sectors. But these cannot propel the economy into the desired growth path alone.

A Blueprint for Economic Revival

- The following paragraphs outline this paper's seven-point blueprint for India's economic revival.

1. Universalize PDS for a year

- Expenditure on food, as a percentage of total household consumption, was **33.2 percent in rural areas and 22.4 percent in urban areas** in 2017-18. The first fiscal intervention should be in making **food available to as many as possible**.
- According to Food Corporation of India (FCI) data, total stock of rice and wheat in the central pool amounts to **70.03 million tonnes (MT)** in September 2020. Given this high level of food grains stock, a **temporary universalization of PDS** can be undertaken. Roughly **66 MT food grains are needed to universalize PDS for six months**, and the country has more currently.
- Expenditure on **food is one of the principal expenses** of any household. Covering that with universalization of PDS can **free money for other purchases.**
- A second reason is related to **targeting cost**. Instead of spending money on targeting, universalization can sufficiently increase the coverage of the PDS for those who need it urgently. It can be assumed that those who have the wage protection will not take the **trouble to queue up for a few kilograms** of grains in a time of a pandemic. The **leakages are also less** in a universal PDS system.
- Third, given the **upward movements in the prices** of primary articles (mainly food), universal PDS has the **capacity to keep the prices down**. In a recessionary situation, that is an **additional but no less important reason to universalize** the PDS for next six months to one year.

2. Expanding employment guarantee to urban areas

- After the migrant workers' crisis during the lockdown, the **focus has shifted to reverse migratio**n. There are already reports of **workers returning from their homes**, where they could not find gainful employment.
- Incidentally, **MGNREGA** has already been used by more than **86 million people in the first half of 2020-21**. This is the **highest-ever utilization** of the scheme since its launch in 2006.
- Given the sharp drop in GDP, **opportunities in urban areas are also expected to shrink**. It is of paramount importance that these circular migrants are absorbed into the urban employment set.
- But the absorption may not be an easy task when jobs are generally disappearing. Expansion of employment guarantee schemes in urban areas is thus necessary to stabilize the economy.
- The **Odisha government** has decided to bring the employment guarantee scheme in the urban areas. The state was expected to spend around INR 200 crore in 2020 for this purpose.
- Apart from **boosting purchasing power and thereby consumption demand**, this scheme has the potential to **raise and stabilise urban wages**.
- This can also create a **stable national labour market by regularizing inter-state migration** that can continuously balance surplus and shortage in different labor markets.

3. Direct cash transfer to affected populations

- According to National Accounts Statistics data, there is 52.4-percent prevalence of informality in the workforce.
- In India, roughly one-third of the population are engaged in some kind of work periodically. Remaining two-thirds are dependent on these workers.
- The government's March relief package of INR 1.7 lakh crore consisted of direct benefit transfer (DBT) to 80 crore population in various categories under Pradhan Mantri Garib Kalyan Yojana (PMGKY). However, out of this amount, INR 73,000 crore was the incremental amount, and the rest was already budgeted earlier in the year.
- SBI Eco wrap report estimated the total income loss of India's 37.3 crore workers (self-employed, casual and regular) during the lockdown at around INR 4 lakh crore. The amount earmarked for DBT is inadequate.
- It would not be imprudent to say that more DBT is needed – covering more people.
- While it is true that identifying affected populations is a difficult task, it will not be impossible, either, using Aadhaar and a coordinated effort between central and state governments.

4. Provide input tax relief to producers in selected sectors

- Quick estimates of Index of Industrial Production (IIP) reaffirms the fact that industrial production of the country remains in distress.
- In these trying times for industry, the usual clamor is for corporate tax concessions. It will not work this time. The most important point to note is that the contraction has started in March 2020 – signifying already existing distress in Indian industrial production. The pandemic amplified it many times.
- Therefore, the possible way through this recessionary trend in industry is to provide input tax concessions. It is quite comprehensible that the government is in no position to provide input subsidies to all sectors. The process may start with the top five manufacturing in terms of weightage – metals, oil, chemicals, processed food and automobile.
- Once some of the initial beneficiary sectors revive themselves, those can be taken out and replaced by others – machinery & equipment, textiles, electrical equipment being the prominent among those.
- This can be an effective supply-side augmentation in addition to the demand inducing measures like DBT and urban employment guarantee. In totality then it can revive a good part of the investment demand.

5. Public investment in physical and social infrastructure

- When the economy is suffering from lack of overall demand, it will be futile to expect that private investment will come to the rescue. Therefore, **public investment is necessary to crowd in private investment**.
- India has a lack of infrastructure facilities that has been often cited as one of the major reasons behind the failure of industry, particularly manufacturing, to take off and reach a desired level.

- Aggressive public investment on infrastructure for a year or two can help the efforts to revive the economy.
- Building infrastructure creates **immediate employment and purchasing power**, infusing demand into the system. Through the multiplier effect, it can then **feed into the future investment cycle** as well.
- In the short to medium term, India has to rely on **debt financing to boost public investment** in order to revive the economy.

6. Suspend FRBM for two years

- To provide fiscal push to the economy, **FRBM (Fiscal Responsibility and Budgetary Management) Act** needs to be put on hold for two years.
- The government has already made use of the flexibility enshrined in the FRBM Act under exceptional circumstances in 2019-20 and 2020-21 budgets, with **targeted budget deficits put 0.5 percent (of GDP)** higher than the FRBM mandated ones.
- Therefore, it does not make economic sense not to undertake a stimulus programme because of FRBM. Currently the growth concerns clearly outweigh worries about future macro stability risks.

7. Monetise the central fiscal deficit

- Estimates of actual fiscal stimulus by different entities like banks and credit rating agencies show the size of the economic package in the range of 0.8 percent to 1.3 percent of GDP.
- If SBI fiscal cost estimate to government for March and May stimulus—at INR 2 lakh crore—is assumed as the real approximation of announced stimulus, then INR 8 lakh crore more needs to be provisioned.
- Except for Japan and the EU (both of which lost interest rate maneuverability long back), all other economies have slashed their rates substantially amidst the COVID-19 spread.
- Therefore, an attempt can be made to tap these debt markets by the government; the **NRIs can also be offered COVID bonds at floating rates** – with the assumption that rates will be at lower levels for some time. Rupee worsening in the foreign exchange market is indeed a risk—but one worth taking at this juncture.
- In the domestic market, however, there is a **larger possibility of mobilization of finance** because many large funds, institutional and high net worth individuals, may opt for an assured return COVID bond – even at a relatively lower rate of interest.
- If the economy has to be revived, then a stimulus of this magnitude is necessary. Abiding by FRBM-mandated targets now may damage the economy badly, and then a lower fiscal deficit would not be able to help anybody next year.

RoDTEP SCHEME

GS-III ECONOMY

Context

- RoDTEP (Remission of Duties or Taxes on Export Products) Scheme will replace MEIS (Merchandise Exports from India) Scheme with effect from 1 January 2021. Benefit of Remission of Duties and Taxes on Exported Products (RoDTEP) scheme will be extended to all export goods.

Need

- The RoDTEP Scheme came into existence because the USA filed a complaint against India at the WTO stating that export subsidies like the MEIS scheme given by the Government of India (GOI) gave undue benefits to Indian exporters and was against the WTO rules.
- India lost the case at WTO and had to come up with a new WTO-compliant scheme to help Indian exporters.
- Hence, the RoDTEP Scheme was approved by the Union Cabinet on 13th March 2020 and it will be effective from January 2021.

About the RoDTEP Scheme

- RoDTEP is a new scheme to replace the existing MEIS scheme for exports of goods from India, which aims to **reimburse the taxes and duties incurred by exporters** such as local taxes, coal cess, mandi tax, electricity duties and fuel used for transportation, which are **not exempted or refunded under any other existing scheme.**
- It is a scheme for exporters to **make Indian products cost-competitive** and **create a level playing field for them in the global market.**
- The Scheme will **enclose all sectors (including textiles)**, with priority given to **labor-intensive sectors** which are enjoying benefits under **MEIS Scheme at 2%, 3% or 5%** of the export value from 1 January 2021
- **Eligibility:**
  - Both merchant **exporters (traders) and manufacturer exporters** are eligible
  - **SEZ Units and EOU Units** are also eligible to claim benefits
  - There is **no minimum turnover** criteria to claim RoDTEP
  - Goods exported through **e-commerce platforms via courier** are also eligible.
  - Country of origin of the exported products should be India, **re-exported products are not eligible**

Comparison between MEIS and RoDTEP

Detail	MEIS	RoDTEP
Schema of Incentive	Additional Incentive on Exports of goods apart from other refunds and drawbacks available on undertaking the said exports.	Refund of Indirect taxes on Inputs used in the manufacture of exported product which is not being currently reimbursed by any other existing schemes.
WTO Compliance	Non-Compliant with WTO trade norms	Compliant with WTO trade norms
Incentive Percentage	2% to 5% of FOB value of Exports.	Product-based % – Expected to be lesser than the existing MEIS Incentive scheme [To be notified later]
Mode of Issuance	Issuance in the form of transferable scrips (Hard copy/ downloadable)	Issuance in the form of transferable duty credit/ electronic scrip which will be maintained in electronic ledger.

Pros of RoDTEP

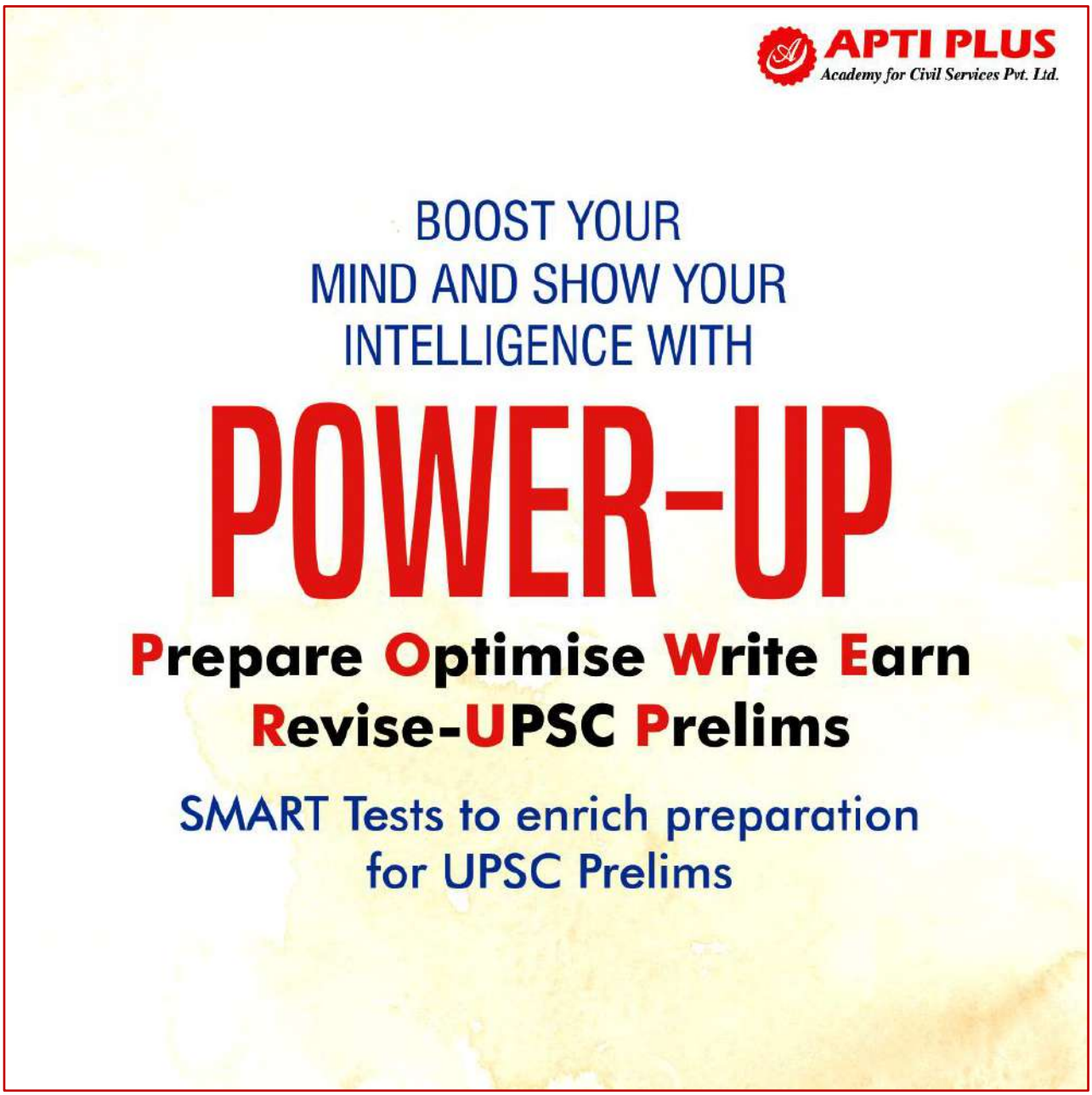
- The RoDTEP Scheme aims to refund all those taxes and levies which are presently disallowed, for example:
  - Central & state taxes on the fuel (Petrol, Diesel, CNG, PNG, and coal cess, etc.) used for transportation of export products
  - The duty levied by the state on electricity used for manufacturing
  - Mandi tax levied by APMCs
  - Toll tax & stamp duty on the import-export documentation
- Tax assessment is set to become fully automatic for exporters.
- Exporters will enjoy lower rates of interest on capital loans, higher insurance cover, financial incentives on exports
- Increased loan availability for exporters and provision of credit at reduced interest rates to MSMEs
- The MoF will be working towards reducing the clearance time at airports and ports to decrease delays in exports. Exporters will be able to monitor the clearance status real-time via a digital platform.

Cons of RoDTEP

- Since the RoDTEP scheme will be strictly based on the input taxes paid by various sectors, including on fuel and electricity, the **rates of refund for sectors where the incidence of such taxes is low, will be much less** than what these sectors enjoy under the MEIS scheme.
- For example, sectors like textiles, which do not have incidence of taxes on fuel, will have **lower rates under RoDTEP than the engineering goods sector**, especially steel and alloys, where the incidence of such taxes is higher.

Conclusion

- Since the incentive rates are not fixed, it is somewhat early to comment on the RoDTEP Scheme. Implementation of the scheme would make India a WTO-compliant exporter in the international market and the process that is promised by GOI seems to be a simpler and more transparent one for exporters, improving efficiencies in collection of refunds as well. However, the question of applicable rates remains open as of now, which may well form the crux of exporters' concerns about the change.



RUTHENIUM 106

Context

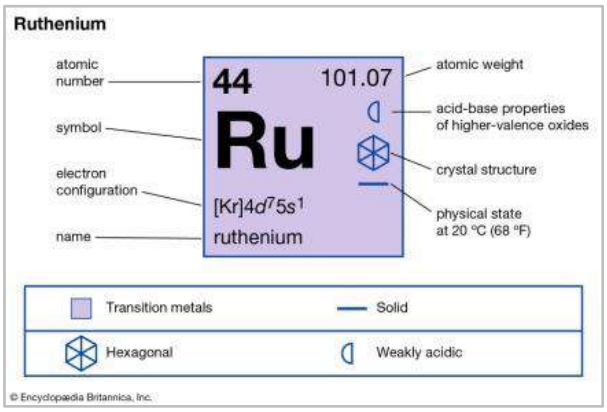
- Bhabha Atomic Research Centre (BARC) Mumbai has developed Eye Cancer therapy in the form of the first indigenous Ruthenium 106 Plaque for treatment of Ocular Tumours.

What are Ocular Tumors?

- Ocular tumors are tumors inside the eye.
- They are collections of cells that grow and multiply abnormally and form masses.
- They can be benign or malignant.
- In adults the most common type is metastatic, from another part of the body (lung, breast, prostate, etc).
- Another common type of ocular tumor is malignant melanoma.
- They can start as a small "mole" or "birthmark" in the eye called choroidal nevus.
- These are usually found during routine eye exams and should be closely monitored for growth by your retina specialist.
- Treatment: Radiation, Chemotherapy or Surgery

What is Ruthenium-106?

- Ruthenium-106 is a radioactive form of the rare heavy metal ruthenium, which is a "platinum group" metal similar to platinum.
- Radioactive isotopes or forms of elements naturally decay into other elements, giving off radiation in the process.



Source

- Ruthenium-106 is produced from the fission or splitting of uranium-235, the type of uranium used in nuclear fission reactors, so it's found in spent nuclear fuel.
- It's also used in medicine for cancer radiation therapy, especially for eye and skin tumours, so it may be produced for that purpose.
- And it's used in radioisotope thermoelectric generators that power satellites, says BfS, the German federal office for radiation protection.

Radiation

- Ruthenium-106 gives off radiation in the form of high energy electrons called beta particles as it decays into rhodium-106 and then into palladium-106, which isn't radioactive.
- Ruthenium-106 has a half life of 373.6 days, or around a year. That means after a year, half of it would have decayed and only half would remain.

The Bhabha Atomic Research Centre (BARC) is India's premier nuclear research facility, headquartered in Trombay, Mumbai, Maharashtra. BARC is a multi-disciplinary research centre with extensive infrastructure for advanced research and development covering the entire spectrum of nuclear science, engineering and related areas.
BARC's core mandate is to sustain peaceful applications of nuclear energy, primarily for power generation.

INSACOG

GS-III SCIENCE & TECHNOLOGY

Context

- The government has launched the Indian SARS-CoV-2 Genomic Consortia (INSACOG).

Why was INSACOG formed?

- INSACOG was formed in the backdrop of the emergence of a newly identified variant of the novel SARS-CoV-2 Virus in the UK, South Africa and some other parts of the world.
- These mutations are rapidly increasing the number of variants of the virus.
- The Indian Government hence took action to accelerate Virus Surveillance, Genome Sequencing and Characterization.

Aim

- To monitor the genomic variations in the SARS-CoV-2 on a regular basis through a multi-laboratory network.
- This vital research consortium will also assist in developing potential vaccines in the future.
- The consortium will ascertain the status of new variant of SARS-CoV-2 (SARS-CoV-2 VUI 202012/01) in the country.
- It will also establish surveillance for early detection of genomic variants with public health implication.
- INSICOG will also determine the genomic variants in the unusual events/trends (super-spreader events, high mortality/morbidity trend areas etc.)

Significance

- The Indian SARS-CoV-2 Genomics Consortium (INSACOG) will monitor the genomic variations on a regular basis through the multi-laboratory network.
- Knowledge generated though this vital research consortium will also assist in developing diagnostics and potential therapeutics and vaccines in the future.

COVISHIELD AND COVAXIN

GS-III SCIENCE & TECHNOLOGY

Context

- Drug Controller General of India (DCGI) on Sunday approved Serum Institute of India's 'Covishield' vaccine and Bharat Biotech's 'Covaxin' for emergency use against coronavirus.

Covishield

- Covishield is the local name for the Oxford-AstraZeneca vaccine developed in the UK.
- The scientific name of the vaccine is ChAdOx1.
- ChAdOx1 is an adenoviral vaccine vector developed by University of Oxford.
- The vector is a chimpanzee adenovirus modified to avoid its replication.

Adenoviruses are non-enveloped, double-stranded DNA viruses first discovered in the human adenoid tissue in 1953 by Rowe. In humans, adenoviruses generally cause mild respiratory and gastrointestinal tract infections; however, adenovirus-induced infections can be life-threatening in immune-compromised people, or people with pre-existing respiratory or cardiac disorders. These viruses are isolated from a wide variety of mammalian species, ranging from simians, chimpanzees to human beings.
Adenoviruses are considered as excellent vectors for delivering target antigens to mammalian hosts because of their capability to induce both innate and adaptive immune system. Currently, adenovirus-based vaccines are used against a wide variety of pathogens, including *Mycobacterium tuberculosis*, human immunodeficiency virus (HIV), and *Plasmodium falciparum.*

Covaxin

- BBV152 (also known as Covaxin) is an inactivated virus based COVID-19 vaccine.
- It is being developed by Bharat Biotech in collaboration with the Indian Council of Medical Research.

The Indian Council of Medical Research (ICMR), the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest and largest medical research bodies in the world. The ICMR is funded by the Government of India through the Department of Health Research, Ministry of Health and Family

BIRD FLU

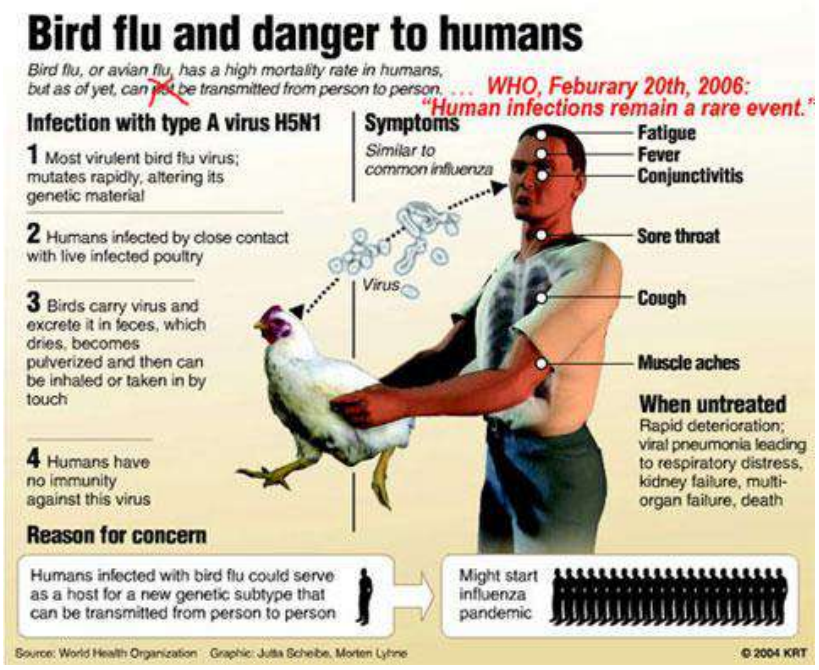
GS-III SCIENCE & TECHNOLOGY

Context

- Recently, a bird flu outbreak, has been reported at 12 epicenters in four states -- Kerala, Rajasthan, Madhya Pradesh and Himachal Pradesh.

Bird/ Avian Flu

- Bird flu or Avian Influenza is a contagious disease of bird raging from mild to serve form of illness.
- Some forms of bird flu infections can cause illness to humans.
- Bird flu is caused by influenza A virus.
- There are three main subtypes of avian flu, including H5, H7, and H9. The subtypes H5 and H7 are the most deadly, while the H9 subtype is less dangerous.
- It can also cause severe infection in humans.
- Typically, it's transmitted between birds, but it can be passed from bird to human. It **does not appear to spread from person to person.**


Bird flu and danger to humans
Bird flu, or avian flu, has a high mortality rate in humans, but as of yet, can not be transmitted from person to person. ... WHO, Feburary 20th, 2006: "Human infections remain a rare event."
Infection with type A virus H5N1
1 Most virulent bird flu virus; mutates rapidly, altering its genetic material
2 Humans infected by close contact with live infected poultry
3 Birds carry virus and excrete it in feces, which dries, becomes pulverized and then can be inhaled or taken in by touch
4 Humans have no immunity against this virus
Virus
Symptoms
Similar to common influenza
Fatigue
Fever
Conjunctivitis
Sore throat
Cough
Muscle aches
When untreated
Rapid deterioration; viral pneumonia leading to respiratory distress, kidney failure, multi-organ failure, death
Reason for concern
Humans infected with bird flu could serve as a host for a new genetic subtype that can be transmitted from person to person
Might start influenza pandemic
Source: World Health Organization Graphic: Jutta Scheibe, Morten Lyhne
© 2004 KRT

History

- First identified in Italy in 1878, highly pathogenic avian influenza is characterized by sudden onset of severe disease, rapid contagion, and a mortality rate that can approach 100% within 48 hours.
- Human deaths from avian influenza were unknown until 1997, when six people in Hong Kong died from the particularly virulent H5N1 strain.

Etiologic Agent

- The causative agent is the avian influenza (A1) virus. A1 viruses all belong to the influenza virus, a genus of the Orthomyxoviridae family and are negative-stranded, and segmented.

Modes of Transmission

- Avian influenza spreads in the air and in manure.
- **Wild aquatic birds such as ducks and geese are the natural reservoir** of Influenza A viruses and the central players in the ecology of these viruses.
- Wild fowl often acts as resistant carrier spreading it to more susceptible domestic stocks.
- It can also be transmitted through contaminated feeds, water, equipment, and clothing.

- Sometimes, the virus jumps over to mammals such as pigs, horses, cats and dogs.
- While avian influenza spreads rapidly among birds, it does not infect humans easily, and there is no confirmed evidence of human-to-human transmission. Of the 15 subtypes known, only subtypes H5 and H7 are known to be capable of crossing the species barrier.

Does it spread easily to humans?

- No, it does not. Generally, people coming in close contact with infected alive or dead birds have contracted the H5N1 bird flu, and it does not usually spread from person to person, as per the WHO.
- There is also no evidence, the WHO says, that the disease can be spread to people through properly prepared and cooked poultry food.
- **The virus is sensitive to heat, and dies in cooking temperatures.**

Then why the scare?

- **H5N1** is **severe and deadly** – around 6 out of 10 confirmed cases in humans have led to deaths (though the actual mortality rate may be lower due to under-reporting of asymptomatic cases).
- If the virus mutates and becomes easily transmissible from person to person, say by altering its shape to grab human cells much more effectively, it **can potentially cause a pandemic.**
- Also, flu viruses are **more prone to mutation** because they have a segmented genome.
- All known strains of flu – including the seasonal flu and the pandemic flu – have jumped from birds to humans in this way.

Is it safe to eat chicken, poultry products and other wild game birds?

- Yes, it is safe to eat properly prepared and cooked poultry and game birds. The virus is sensitive to heat. Normal temperatures used for cooking (so that food reaches 70°C in all parts) will kill the virus.

Incubation Period

- The incubation period is three to five days.

Signs and Symptoms

- The symptoms of Bird flu infection may include fever (often high fever, > 38°C) and malaise, cough, sore throat, and muscle aches.
- Other early symptoms may include abdominal pain, chest pain and diarrhea.
- The infection may progress quickly to severe respiratory illness (for example, difficulty breathing or shortness of breath, pneumonia, Acute Respiratory Distress Syndrome) and neurologic changes (altered mental status or seizures).

Treatment

- The antiviral medicine oseltamivir can reduce the severity of illness and prevent death, and should be used in all cases.
- Candidate vaccines to prevent Bird Flu infection have been developed, but they are not ready for widespread use.

H5N8

- In the recent outbreak presence of the H5N8 subtype of the Influenza A virus was reported in ducks in parts of Kerala.
- H5N8 is a subtype of the Influenza A virus (sometimes called bird flu virus).
- Although H5N8 is considered one of the less pathogenic subtypes for humans, it is beginning to become more pathogenic. H5N8 has previously been used in place of the highly pathogenic H1N1 in studies.
- While H5N8 presents only a low risk to humans, it is highly lethal to wild birds and poultry.

Note: Read about Flu Viruses in detail here: https://www.iasgyan.in/blogs/different-types-of-flu-viruses-you-must-know-about

MUKUNDPURA METEORITE

GS-III SCIENCE & TECHNOLOGY

Context

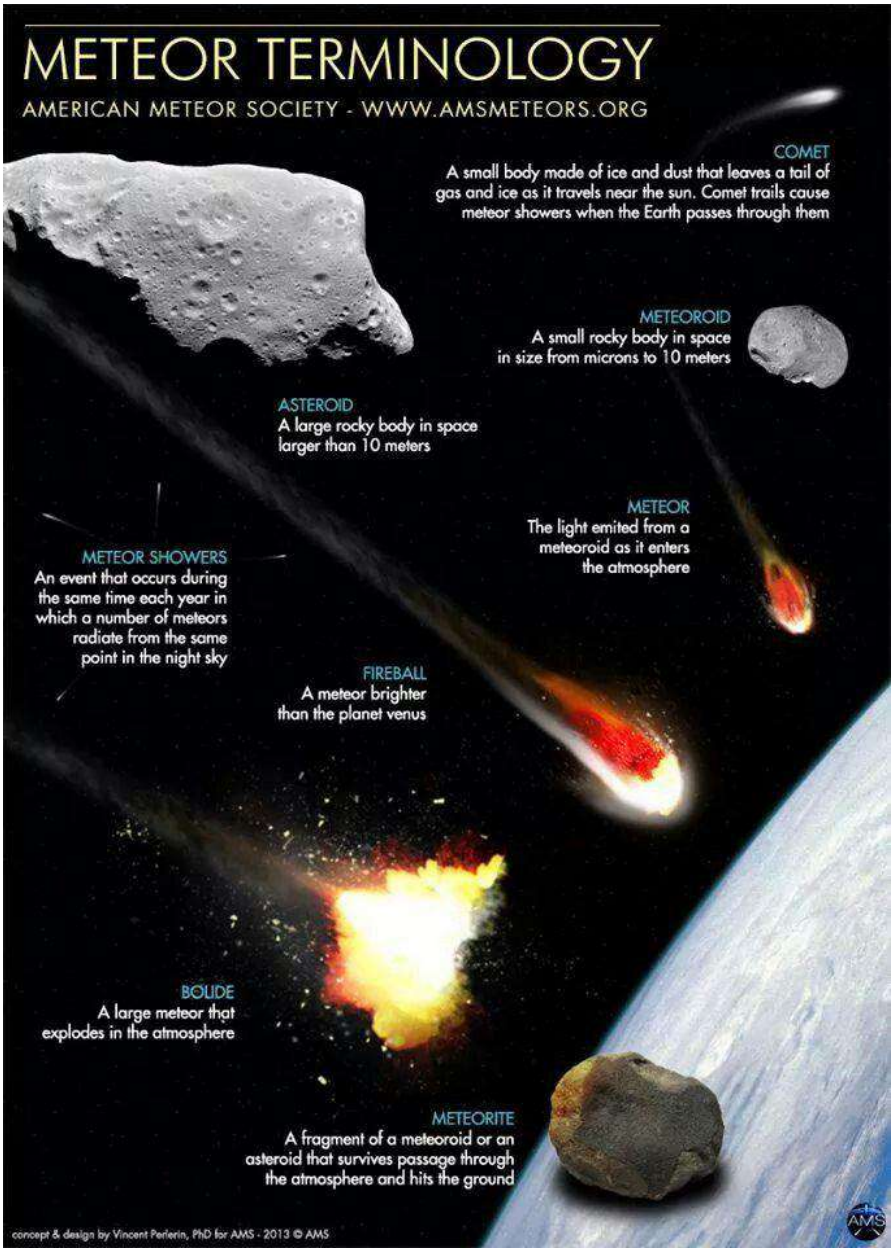
- An asteroid which has hit Mukundpura village near Jaipur in 2017 has been named after the same village and is under the study of Geological Survey of India, Kolkata.

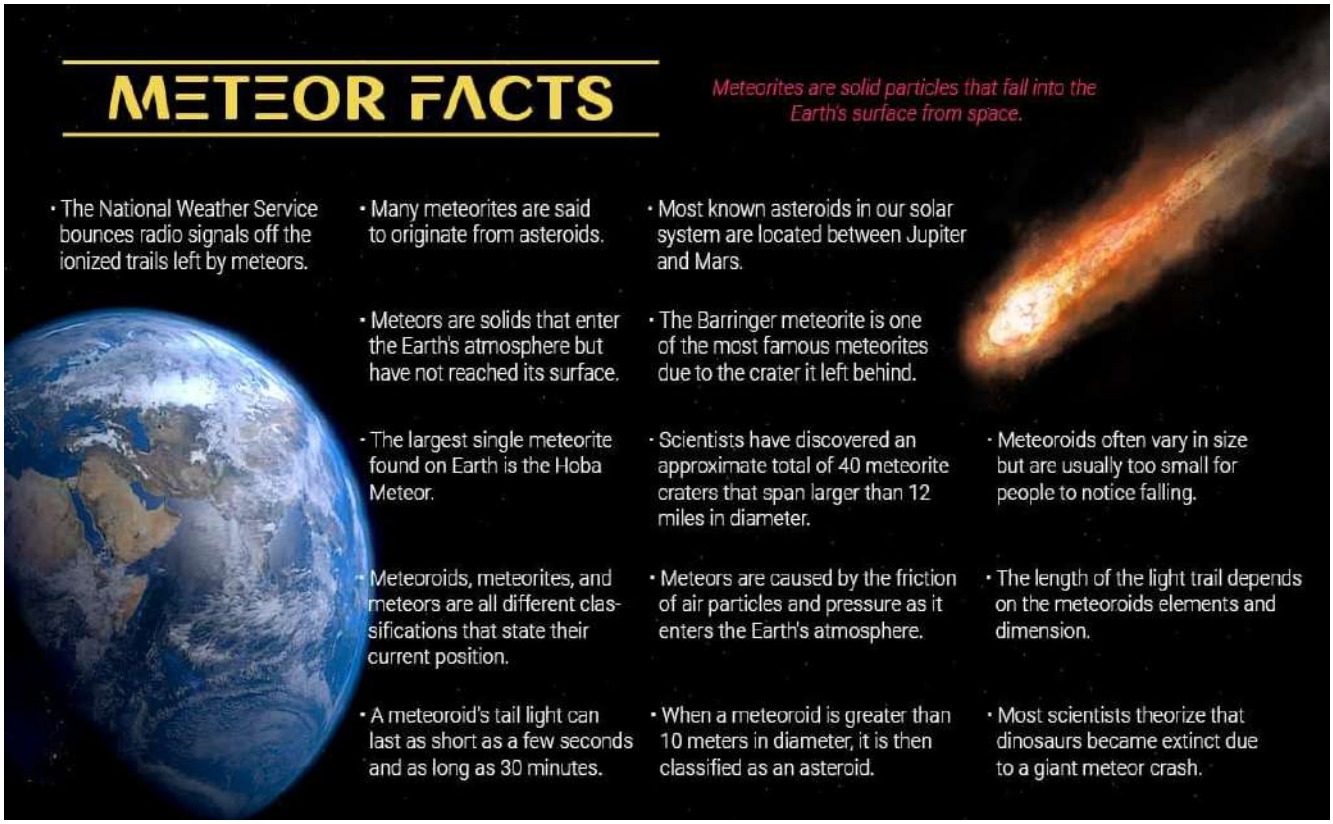
Details

- The meteorite belongs to a very rare and primitive group of meteorites called CM group of carbonaceous chondrites.
- Note: An estimated 44 tonnes of meteoritic material hit the earth every day, but less than 5% of these belong to this group.
- Carbonaceous chondrite meteorites, unlike other meteorites, contain very primitive traces of carbon. And carbon forms the backbone of all life on earth.

Significance

- This meteorite could be carrying some of the most pristine primordial matter recovered from space as it is made up of materials which were formed during the early stages of the formation of the solar system.
- Its composition could be very close to that of Solar Nebula, from which the solar system is believed to have condensed.
- Hence it can shed light on formation and evolution of stars and provide information about the age, composition and evolution of the solar system
- A detailed analysis could provide clues about the origin of life as well.


METEOR TERMINOLOGY
AMERICAN METEOR SOCIETY - WWW.AMSMETEORS.ORG
COMET
A small body made of ice and dust that leaves a tail of gas and ice as it travels near the sun. Comet trails cause meteor showers when the Earth passes through them
METEOROID
A small rocky body in space in size from microns to 10 meters
ASTEROID
A large rocky body in space larger than 10 meters
METEOR
The light emited from a meteoroid as it enters the atmosphere
METEOR SHOWERS
An event that occurs during the same time each year in which a number of meteors radiate from the same point in the night sky
FIREBALL
A meteor brighter than the planet venus
BOLIDE
A large meteor that explodes in the atmosphere
METEORITE
A fragment of a meteoroid or an asteroid that survives passage through the atmosphere and hits the ground
concept & design by Vincent Perlerin, PhD for AMS - 2013 © AMS


METEOR FACTS
Meteorites are solid particles that fall into the Earth's surface from space.
• The National Weather Service bounces radio signals off the ionized trails left by meteors.
• Many meteorites are said to originate from asteroids.
• Most known asteroids in our solar system are located between Jupiter and Mars.
• Meteors are solids that enter the Earth's atmosphere but have not reached its surface.
• The Barringer meteorite is one of the most famous meteorites due to the crater it left behind.
• The largest single meteorite found on Earth is the Hoba Meteor.
• Scientists have discovered an approximate total of 40 meteorite craters that span larger than 12 miles in diameter.
• Meteoroids often vary in size but are usually too small for people to notice falling.
• Meteoroids, meteorites, and meteors are all different classifications that state their current position.
• Meteors are caused by the friction of air particles and pressure as it enters the Earth's atmosphere.
• The length of the light trail depends on the meteoroids elements and dimension.
• A meteoroid's tail light can last as short as a few seconds and as long as 30 minutes.
• When a meteoroid is greater than 10 meters in diameter, it is then classified as an asteroid.
• Most scientists theorize that dinosaurs became extinct due to a giant meteor crash.

HELIOPHYSICS MISSION

GS-III SCIENCE & TECHNOLOGY

Context

- NASA has approved two Heliophysics missions to explore the Sun and the system that drives space weather near Earth.

Details

- Together, NASA's contribution to the Extreme Ultraviolet High-Throughput Spectroscopic Telescope Epsilon Mission, or EUVST, and the Electrojet Zeeman Imaging Explorer, or EZIE, will help us understand the Sun and Earth as an interconnected system.

NASA's EZIE Mission

- The EZIE mission will study the atmosphere of the Earth and the electric currents in it, which link the aurora to the magnetosphere.
- The magnetosphere is a complex space weather system that responds to several factors, including solar activity.
- The levels of geomagnetic activity are commonly measured by the Auroral Electrojet (AE) index, even as scientists do not currently understand the details regarding the currents' structure.
- NASA has slated the mission for launch in June 2024.

JAXA's Solar-C EUVST Mission

- A solar telescope, the EUVST would be studying the solar wind released by the solar atmosphere.
- It will also study how this atmosphere drives solar material eruption.
- Studying them is important because they impact the space radiation environment throughout the solar system.
- The mission is aimed to be launched in 2026.

Significance

- Understanding the physics that drive the solar wind and solar explosions – including solar flares and coronal mass ejections – could one day help scientists predict these events, which can impact human technology and explorers in space.

ASTROSAT

GS-III SCIENCE & TECHNOLOGY

Context

- Astronomers exploring the massive intriguing globular cluster in our Galaxy called NGC 2808 have spotted rare hot UV-bright stars in it using AstroSats Ultraviolet Imaging Telescope.

AstroSat

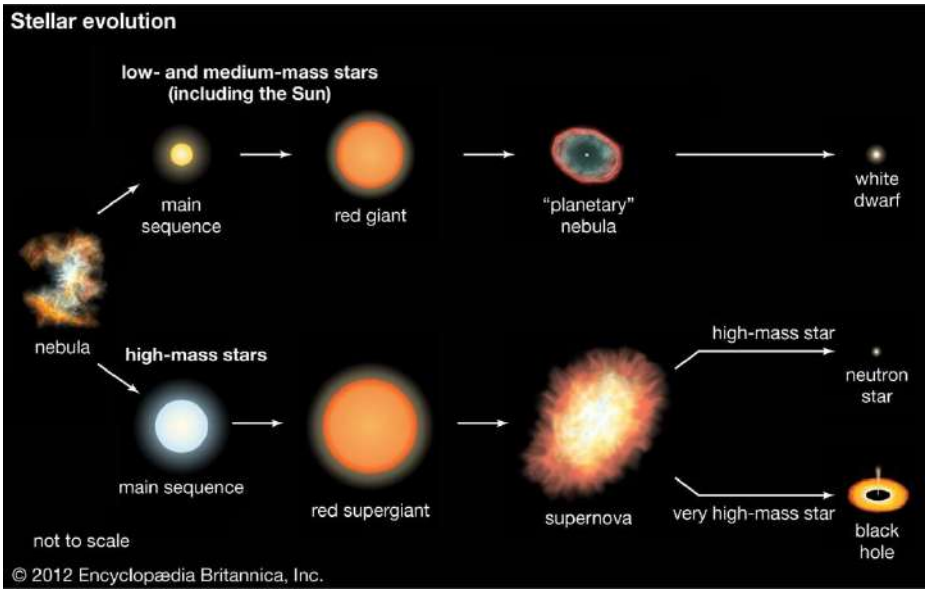
- AstroSat is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously.
- The payloads cover the energy bands of Ultraviolet (Near and Far), limited optical and X-ray regime (0.3 keV to 100keV).
- One of the unique features of AstroSat mission is that it enables the simultaneous multi-wavelength observations of various astronomical objects with a single satellite.

The scientific objectives of AstroSat mission are

- To understand high energy processes in binary star systems containing neutron stars and black holes;
- Estimate magnetic fields of neutron stars;
- Study star birth regions and high energy processes in star systems lying beyond our galaxy;
- Detect new briefly bright X-ray sources in the sky;
- Perform a limited deep field survey of the Universe in the Ultraviolet region.

Significance of the recent discovery

- Such UV-bright stars are speculated to be the reason for the ultraviolet radiation coming from old stellar systems such as elliptical galaxies which are devoid of young blue stars.
- Hence, it is all the more important to observe more such stars to understand their properties.



5G

Context

- The Department of Telecommunications (DoT) has sought inputs from telcos and other industry experts on the sale and use of radio frequency spectrum over the next 10 years, including the 5G bands.

What is 5G technology?

- 5G or fifth generation is the latest upgrade in the long-term evolution (LTE) mobile broadband networks.
- 5G mainly works in 3 bands, namely low, mid and high frequency spectrum – all of which have their own uses as well as limitations.

The difference between 2G, 3G, 4G, 5G

- Simply, the "G" stands for "GENERATION". While connected to the internet, the speed of the connection depends upon the signal strength that is shown in abbreviations like 2G, 3G, 4G, 5G, etc. on any mobile device.
- Each generation of wireless broadband is defined as a set of telephone network standards that describe the technological implementation of the system.
- For the comparison of 2G, 3G, 4G, and 5G we first need to understand the key features of all these technologies.

SECOND GENERATION (2G)

- 2G refers to the second generation of mobile networks based on GSM.
- The radio signals used by the 1G network were analog, while 2G networks were digital.
- 2G capabilities were achieved by allowing multiple users on a single channel via multiplexing. During 2G, Cellular phones were used for data along with voice. Some of the key features of 2G were:
  - ✓ Data speeds of up to 64 kbps
  - ✓ Use of digital signals instead of analog
  - ✓ Enabled services such as SMS and MMS (Multimedia Message)
  - ✓ Provided better quality voice calls
  - ✓ It used a bandwidth of 30 to 200 KHz

THIRD GENERATION (3G)

- The 3G standard utilizes Universal Mobile Telecommunications System (UMTS) as its core network architecture.

> The Universal Mobile Telecommunications System (UMTS) is a third generation mobile cellular system for networks based on the GSM standard. Developed and maintained by the 3GPP (3rd Generation Partnership Project), UMTS is a component of the International Telecommunications Union IMT-2000 standard set and compares with the CDMA2000 standard set for networks based on the competing cdmaOne technology. UMTS uses wideband code-division multiple access (W-CDMA) radio access technology to offer greater spectral efficiency and bandwidth to mobile network operators.
> UMTS specifies a complete network system, which includes the radio access network (UMTS Terrestrial Radio Access Network, or UTRAN), the core network (Mobile Application Part, or MAP) and the authentication of users via SIM (subscriber identity module) cards.

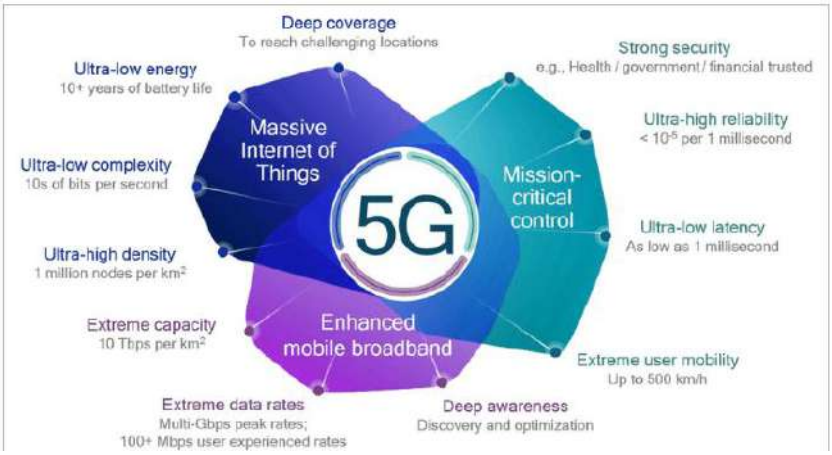
- 3G network combines aspects of the 2G network with new technologies and protocols to deliver a significantly faster data rate.
- By using packet switching, the original technology was improved to allow speeds up to 14 Mbps.
- It used Wide Band Wireless Network that increased clarity. It operates at a range of 2100MHz and has a bandwidth of 15-20MHz. Some of the main features of 3G are:
  - ✓ Speed of up to 2 Mbps
  - ✓ Increased bandwidth and data transfer rates
  - ✓ Send/receive large email messages
  - ✓ Large capacities and broadband capabilities

FOURTH GENERATION (4G)

- The main difference between 3G and 4G is the data rate. There is also a huge difference between 3G and 4G technology.
- The key technologies that have made 4G possible are MIMO (Multiple Input Multiple Output) and OFDM (Orthogonal Frequency Division Multiplexing). The most important 4G standards are WiMAX and LTE.

MIMO
In radio, multiple-input and multiple-output, or MIMO is a method for multiplying the capacity of a radio link using multiple transmission and receiving antennas to exploit multipath propagation. MIMO has become an essential element of wireless communication standards including (Wi-Fi), HSPA+ (3G), WiMAX, and Long Term Evolution (LTE).

- While 4G LTE is a major improvement over 3G speeds, it is technically not 4G. What is the difference between 4G and LTE?
- Even after it was widely available, many networks were not up to the required speed of 4G. 4G LTE is a "fourth generation long term evolution", capable of delivering a very fast and secure internet connection.
- Basically, 4G is the predetermined standard for mobile network connections.
- 4G LTE is the term given to the path which has to be followed to achieve those predefined standards.
- Some of the features of 4G LTE are:
  - ✓ Support interactive multimedia, voice, and video.
  - ✓ High speed, high capacity and low cost per bit (Speeds of up to 20 Mbps or more.)
  - ✓ Global and scalable mobile networks.
  - ✓ Ad hoc and multi-hop networks.

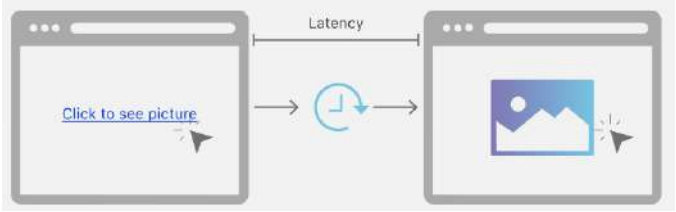


FIFTH GENERATION (5G)

- 5G uses the rarely used radio millimeter bands in the 30 GHz to 300 GHz range.

OFDM
In telecommunications, orthogonal frequency-division multiplexing (OFDM) is a type of digital transmission and a method of encoding digital data on multiple carrier frequencies. OFDM has developed into a popular scheme for wideband digital communication, used in applications such as digital television and audio broadcasting, DSL internet access, wireless networks, power line networks, and 4G/5G mobile communications.

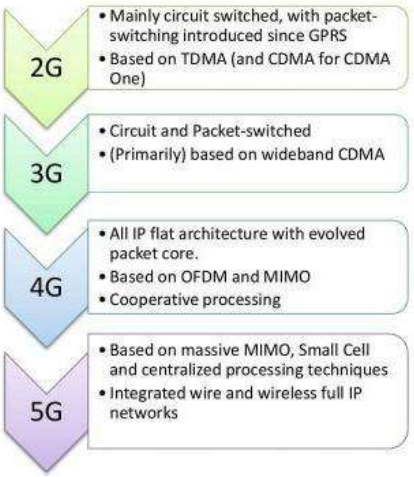
What is latency?
Latency is the time that passes between a user action and the resulting response. Network latency refers specifically to delays that take place within a network, or on the Internet. In practical terms, latency is the time between a user action and the response from the website or application to this action – for instance, the delay between when a user clicks a link to a webpage and when the browser displays that webpage.

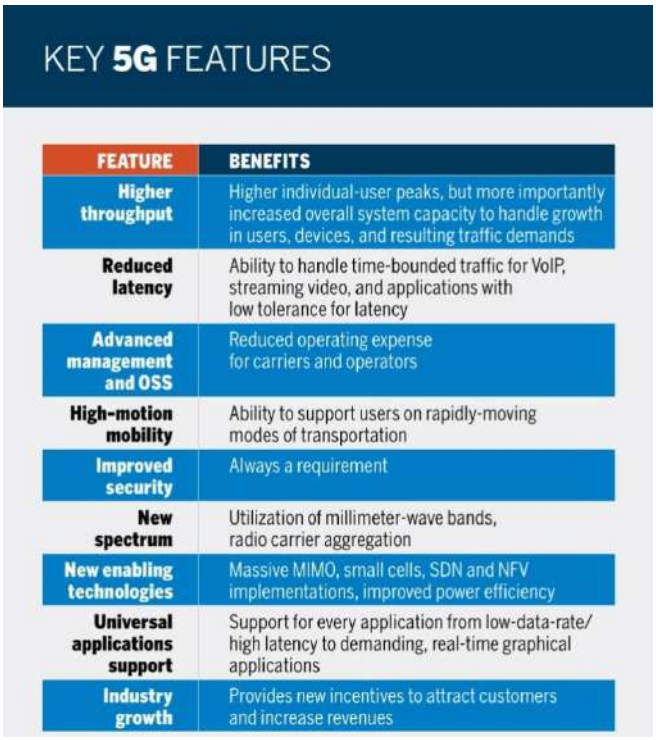


Although data on the Internet travels at the speed of light, the effects of distance and delays caused by internet infrastructure equipment mean that latency can never be eliminated completely. It can and should, however, be minimized. A high amount of latency results in poor website performance, negatively affects SEO, and can induce users to leave the site or application altogether.

- Low latency is one of 5G's most important features.
- 5G uses a scalable orthogonal frequency-division multiplexing (OFDM) framework.
- 5G benefits greatly from this and can have latency as low as one millisecond with realistic estimates to be around 1 – 10 seconds.
- 5G is estimated to be 60 to 120 times faster than the average 4G latency.
- Active antenna 5G encapsulated with 5G massive MIMO is used for providing better connections and enhanced user experience.
- Big 5G array antennas are deployed to gain additional beam forming information and knock out propagation challenges that are experienced at mmWave frequency ranges.
- With speeds of up to 10 Gbps, 5G is set to be as much as 10 times faster than 4G. Following is a brief comparison of 2G, 3G, 4G, and 5G.

Comparison	2G	3G	4G	5G
Introduced in year	1993	2001	2009	2018
Technology	GSM	WCDMA	LTE, WiMAX	MIMO, mm Waves
Access system	TDMA, CDMA	CDMA	CDMA	OFDM, BDMA
Switching type	Circuit switching for voice and packet switching for data	Packet switching except for air interference	Packet switching	Packet switching
Internet service	Narrowband	Broadband	Ultra broadband	Wireless World Wide Web
Bandwidth	25 MHz	25 MHz	100 MHz	30 GHz to 300 GHz
Advantage	Multimedia features (SMS, MMS), internet access and SIM introduced	High security, international roaming	Speed, high speed handoffs, global mobility	Extremely high speeds, low latency
Applications	Voice calls, short messages	Video conferencing, mobile TV, GPS	High speed applications, mobile TV, wearable devices	High resolution video streaming, remote control of vehicles, robots, and medical procedures


2G
• Mainly circuit switched, with packet-switching introduced since GPRS
• Based on TDMA (and CDMA for CDMA One)
3G
• Circuit and Packet-switched
• (Primarily) based on wideband CDMA
4G
• All IP flat architecture with evolved packet core.
• Based on OFDM and MIMO
• Cooperative processing
5G
• Based on massive MIMO, Small Cell and centralized processing techniques
• Integrated wire and wireless full IP networks


KEY 5G FEATURES
FEATURE
BENEFITS
Higher throughput
Higher individual-user peaks, but more importantly increased overall system capacity to handle growth in users, devices, and resulting traffic demands
Reduced latency
Ability to handle time-bounded traffic for VoIP, streaming video, and applications with low tolerance for latency
Advanced management and OSS
Reduced operating expense for carriers and operators
High-motion mobility
Ability to support users on rapidly-moving modes of transportation
Improved security
Always a requirement
New spectrum
Utilization of millimeter-wave bands, radio carrier aggregation
New enabling technologies
Massive MIMO, small cells, SDN and NFV implementations, improved power efficiency
Universal applications support
Support for every application from low-data-rate/ high latency to demanding, real-time graphical applications
Industry growth
Provides new incentives to attract customers and increase revenues

	Gen	Description	Application
CDMA/IS-95	2G	Code-Division Multiple Access	Voice and data up to 14.4kbps
GSM	2G	Global System for Mobile Comm	Voice and data up to 14.4kbps
GPRS	2.5G	General Packet Radio Service	Data up to 48kbps (Class 12)
EDGE (EGPRS)	2.75G	Enhanced Data GSM Environment (Enhanced GPRS)	Data up to 240kbps (Class 12)
CDMA2000 1xRTT	2.75G	First phase of CDMA2000 (RTT=radio transmission technology)	Voice and data up to 144kbps (1xRTT)
CDMA2000 1xEV-DO	3G	Separate channel for data delivery (EV-DO=evolution, data only)	2.4Mbps/164kbps* (Rev 0) or 3.1Mbps/1.8Mbps* (Rev A)
UMTS (WCDMA)	3G	Universal Mobile Telecommunications Service (wideband CDMA)	Voice and data up to 384kbps (2Mbps in nonmobile)
FOMA	3G	Japanese UMTS variant	Used by NTT DoCoMo network
TD-SCDMA	3G	Chinese UMTS variant	Used by China Mobile
HSDPA	3.5G	High-Speed Downlink Packet Access	Downstream data to 14.4Mbps
HSPA/ HSUPA	3.75G	High-Speed (Uplink) Packet Access	Combines upstream data up to 5.76Mbps with HSDPA
HSPA+	3.9G	HSPA Evolution	Data/VoIP to 42Mbps/11Mbps*
WiMax	4G	OFDM-based network	Data, VoIP (maybe) to 75Mbps
LTE	4G	Long-Term Evolution; OFDM downlink and single-carrier uplink	Data/VoIP to 326Mbps/86Mbps* (100Mbps/50Mbps for handsets)

LUMPY SKIN DISEASE

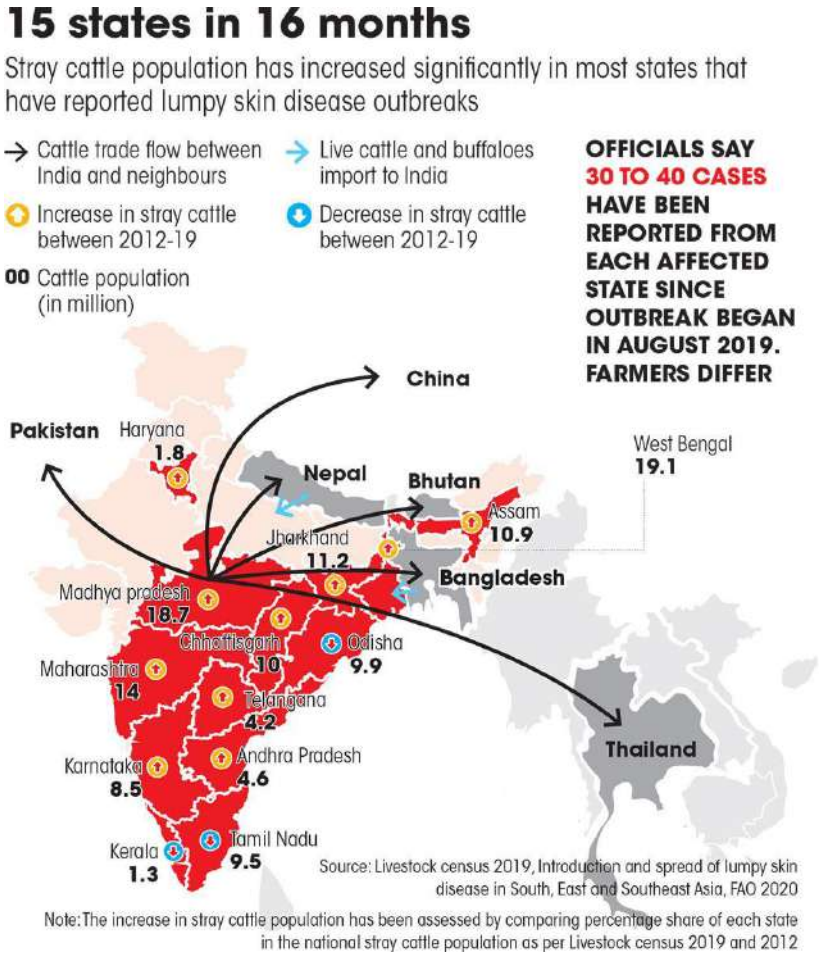
GS-III SCIENCE & TECHNOLOGY

Context

- Lumpy skin disease has taken root among India's bovines.

About

- Lumpy skin disease (LSD) is a poxviral disease with significant morbidity in cattle.
- Lumpy skin disease virus causes a severe disease in cattle characterized by nodules in the skin.
- Although the mortality rate is generally low, economic losses result from loss of condition, decreased milk production, abortions, infertility and damaged hides.
- Lumpy skin disease virus (LSDV) is a member of the genus Capripoxvirus and the family Poxviridae.
- It is closely related antigenically to sheeppox virus and goatpox virus. Although these three viruses are considered to be distinct viral species, they cannot be distinguished by routine serological tests.
- The causative virus spreads mainly by blood-feeding insects, such as certain species of flies and mosquitoes or ticks, and outbreaks can be widespread and difficult to control.
- There is no evidence that LSDV can infect humans.
- LSD was first reported in Asia and the Pacific region in 2019 in north-west China, Bangladesh and India.


15 states in 16 months
Stray cattle population has increased significantly in most states that have reported lumpy skin disease outbreaks
Cattle trade flow between India and neighbours
Live cattle and buffaloes import to India
Increase in stray cattle between 2012-19
Decrease in stray cattle between 2012-19
00 Cattle population (in million)
OFFICIALS SAY 30 TO 40 CASES HAVE BEEN REPORTED FROM EACH AFFECTED STATE SINCE OUTBREAK BEGAN IN AUGUST 2019. FARMERS DIFFER
China
Pakistan
Haryana 1.8
Nepal
Bhutan
West Bengal 19.1
Assam 10.9
Jharkhand 11.2
Bangladesh
Madhya pradesh 18.7
Chhattisgarh 10
Odisha 9.9
Maharashtra 14
Telangana 4.2
Andhra Pradesh 4.6
Karnataka 8.5
Tamil Nadu 9.5
Kerala 1.3
Thailand
Source: Livestock census 2019, Introduction and spread of lumpy skin disease in South, East and Southeast Asia, FAO 2020
Note: The increase in stray cattle population has been assessed by comparing percentage share of each state in the national stray cattle population as per Livestock census 2019 and 2012

Treatment

- There is no treatment for the virus, so prevention by vaccination is the most effective means of control.
- Secondary infections in the skin may be treated with Non-Steroidal Anti-Inflammatories (NSAIDs) and also antibiotics (topical +/- injectable) when appropriate.

Prevention

- Control and prevention of lumpy skin disease relies on four tactics –
  - ✓ movement control (quarantine),
  - ✓ vaccination,
  - ✓ slaughter campaigns and

- ✓ management strategies.

- Specific national control plans vary between countries and so advice should be sought from the relevant authorities and veterinarians.
- Vaccination is the most effective means of control.
- Tracing the source of infection plays a critical role in containing the spread of any contagious infection.
- The disease can be checked if the animal is treated within the initial few days.

ATAL TINKERING LABS

GS-III SCIENCE & TECHNOLOGY

Context

- Atal Innovation Mission, NITI Aayog and Indian Space Research Organization (ISRO) announced that ISRO will be adopting 100 Atal Tinkering Labs across the country.

ATL

- Atal Tinkering Lab (ATL) is a program run by Atal Innovation Mission (AIM) under NITI Aayog to foster curiosity and innovative mindset in young students across India to encourage research and innovation in schools across the country
- **Vision:** to 'Cultivate one Million children in India as Neoteric Innovators'.

Objectives

- To foster curiosity, creativity and imagination in young minds and inculcate skills such as design mind - set, computational thinking, adaptive learning, physical computing, rapid calculations, measurements etc.
- Young children will get a chance to work with tools and equipment to understand what, how and why aspects of STEM (Science, Technology, Engineering and Math).

Key Features of ATL

- ATL is a work space where young minds can give shape to their ideas through hands on do-it-yourself mode; and learn innovation skills.
- Young children will get a chance to work with tools and equipment to understand the concepts of STEM (Science, Technology, Engineering and Math).
- ATL would contain educational and learning 'do it yourself' kits and equipment on – science, electronics, robotics, open source microcontroller boards, sensors and 3D printers and computers. Other desirable facilities include meeting rooms and video conferencing facility.
- In order to foster inventiveness among students, ATL can conduct different activities ranging from regional and national level competitions, exhibitions, workshops on problem solving, designing and fabrication of products, lecture series etc. at periodic intervals.

Financial Support

- AIM will provide grant-in-aid that includes a one-time establishment cost of Rs. 10 lakh and operational expenses of Rs. 10 lakh for a maximum period of 5 years to each ATL.

Eligibility

- Schools (minimum Grade VI - X) managed by Government, local body or private trusts/society to set up ATL.
- The applicant school would have to provide at least 1,500 Sq. Ft. of built up space. Applicant schools from hilly /Himalayan and island states, UTs would have to provide atleast 1,000 Sq. Ft. of built up space.
- The existing facilities for meeting rooms and video conferencing among others can be used to supplement the laboratory.

FOREST FIRES

Context

- Himachal Pradesh frequently witnesses forest fires during dry weather conditions.

How fire prone are Himachal Pradesh forests?

- Except for periods of precipitation in monsoon and winter, the forests remain vulnerable to wildfires.
  - **Forest fires** are a recurrent annual phenomenon in the state, and most commonly occur in Chir Pine forests.
- **Highly-combustible needles of Chir Pine trees catch fire**, it can spread quickly over the entire forest due to the action of the wind.

What causes the fire?

- **Natural causes:** These are **lightning or rubbing of dry bamboos** with each other can sometimes result in fires. A spark can also be produced when dry pine needles or leaves fall on an electric pole.
- **Anthropogenic causes:** Forest officials maintain that almost all forest fires can be attributed to **human factors.**
  - **Accidental events**: When the grass is dry, even a small spark, such as someone dropping a burning matchstick, torchwood or a bidi/cigarette, can cause a massive fire.
  - **Deliberate setting of fire for encroachment and clearing the field from stubble, dry grass or undergrowth** sometimes spreads to the adjoining forest

What are the fuels of such massive fires?

- The **dry leaf litter,** dry grass, weeds, low brushwood, deadwood on the forest floor, logs and stumps etc on the forest ground acts as a **ready fuel.**
- Below the loose litter, **decaying materials such as humus, wood, shrubs, roots, much and peat can also support the combustion**.
- Above the surface level, dry standing trees, mosses, lichens, dry epiphytic or parasitic plants, and fallen branches trapped in the understory can spread the fire to the upper foliage and the tree crowns.

How much damage do the forest fires cause?

- Flora: Forest fires can cause a lot of damage to the regeneration in the forests and their productivity.
  - Moisture-loving trees such as Oaks and Deodars may give way to other species and exotic weeds.
- Water resources: Forests help maintain aquifers and continuous flow of streams and springs, and provide firewood, fodder and non-timber produce to the local communities – all these capacities may get adversely affected in case of a fire.
- Soil degradation: Forest fires may destroy organic matter in the soil and expose the top layer to erosion. Soil get hardened, devoid of moisture, humus etc.
- Fauna: It impact the wildlife by burning eggs, killing young animals and driving the adult animals away from their safe haven.
- Humans: Sometimes, a forest fire may get out of control and extend to human settlements, thus posing danger to human life and property.
- Pollution and climate change: Forest fires increase carbon dioxide levels in the atmosphere, contributing to the greenhouse effect and climate change. In addition, ashes destroy much of the nutrients and erode the soil, causing flooding and landslides.
- The use of chemicals in firefighting adds an additional problem to the already dramatic consequences of forest fires.

Pros of forest fire

- **Clean the forest floor:** Remove the low growing underbrush that exists underneath the canopy. Thus, it works to clean the forest floor of debris.
- **Protection from pests and disease**: Forest fires help to kill the diseases and insects that like to prey on the trees in the biome.
- **Seed germination:** Fire plays an important role in several grassland ecosystems in the world. Fire can trigger germination in several species, by breaking the physical dormancy of their seeds.

What can be done to prevent and control forest fires?

- **Forecasting fire-prone days** using meteorological data
- Clearing camping sites of dried biomass
- Early burning of dry litter on the forest floor
- Growing strips of fire-hardy plant species within the forest and
- Creating fire lines in the forests are some of the methods to prevent fires.
  - **Fire lines** are strips in the forest kept clear of vegetation to prevent the fire from spreading.
- In 1999, the state government **notified forest fire rules** which restrict or regulate certain activities in and around forest areas such as lighting a fire, burning agricultural stubble or undergrowth (ghasnis) and stacking inflammable forest produce such as dried leaves and firewood.

SINGLE-USE PLASTIC

GS-III ENVIRONMENT

Context

- The CSIR-National Institute for Interdisciplinary Science and Technology (NIIST) has come up with an alternative to single-use plastics.
- NIIST scientists have developed a technology for **manufacturing biodegradable tableware** - including plates, cutleries and cups - from agricultural residues and byproducts.
- The biodegradable tableware developed from agricultural residues has a shelf-life of upto six months and heat resistance up to 100 degree celsius.
- **Primary agricultural residues** are generated as a byproduct during the harvesting of agricultural crops
- **Secondary agricultural residues** are the leftovers from post-harvest processing.

Plastic waste issue

- India generates around 27,000 tonnes of plastic waste per day.
- The country produced around 400 million tonnes of plastic waste in 2018-2019 alone.
- The shocking fact is that only nine per cent of all the plastics ever produced was recycled and around 60 % of the plastics have been disposed of into the natural environment or landfills, which poses serious health and environmental hazards.
- With recent ban imposed by various States of India for single-use plastics, there comes a huge demand for alternative to plastics, which are biodegradable in nature.

What is Plastic Pollution?

- Plastic pollution occurs when **plastic has gathered in an area and has begun to negatively impact the natural environment** and create problems for plants, wildlife, and even the human population.
- This includes killing plant life and posing dangers to local animals.
- Plastic is an incredibly useful material, but it is not biodegradable.

Various Causes of Plastic Pollution

- As plastic is **less expensive**, it is one of the most widely available and overused items in the world today.

- **Rapid urbanization and population growth** increase the demand of cheap plastics.
- Since it is an **affordable and durable material**, it is utilized in every other way possible, from packaging materials to plastic bottles and containers, straws to plastic carry bags.
- Plastic takes **400 years and even more to Decompose**. The decomposition rate of plastic typically ranges from 500 to 600 years, depending on the type.
- **Abandoned Fishing Nets**
- Disposal of plastic is often **mismanaged**; it ends up in landfills.
- **Burning plastic is incredibly toxic** and can lead to harmful atmospheric conditions and deadly illnesses.

Serious Effects of Plastic Pollution

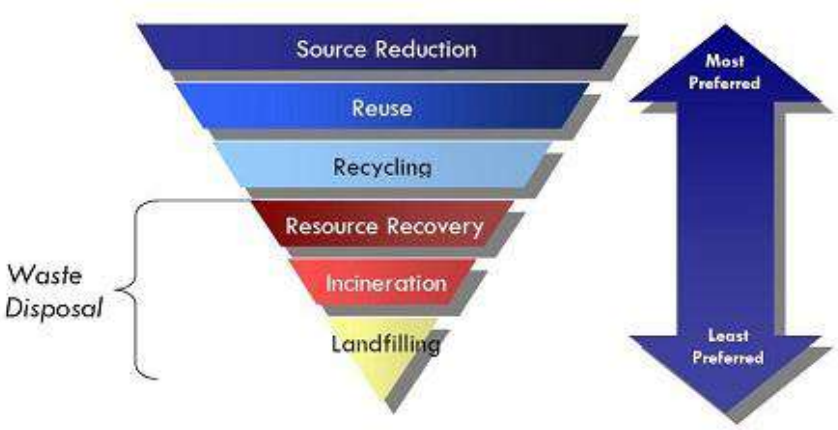
- **Negative Effects on Human Health:** Microplastics entering the human body via direct exposures through ingestion or inhalation can lead to an array of health impacts, including inflammation, genotoxicity, oxidative stress, apoptosis, and necrosis, which are linked to an array of negative health outcomes including cancer, cardiovascular diseases.
- **Plastic-contaminated seafood**: Scientists have found micro plastics in 114 marine species, and around one-third of these end up on our plates.
- **Upsets the Food Chain**: Because it comes in sizes large and small, polluting plastics even affect the world's tiniest organisms, such as plankton.
- **Groundwater Pollution:** Most of the litter and pollution affecting the world's oceans and groundwater comes from plastics.
- **Land Pollution:** When plastic is dumped in landfills, it interacts with water and forms hazardous chemicals. When these chemicals seep underground, they degrade the water quality. The wind carries and deposits plastic from one place to another, increasing the land litter.
- **Air Pollution:** Burning of plastic in the open air leads to environmental pollution due to the release of poisonous chemicals.
- **Economic impacts:** Plastic pollution costs **$13 billion in economic damage** to marine ecosystems per year. This includes losses to the **fishing industry and tourism, as well as the cost to clean up beaches.** Economic costs include those linked to **clean-up operations, litter removal, the repair and replacement of damaged vessels and gear, reduced fishing catches, and a decline in coastal tourism and impact on related industries.**
- **Marine life:** The most visible and disturbing impacts of marine plastics are the **ingestion, suffocation and entanglement** of hundreds of marine species. Marine wildlife such as seabirds, whales, fishes and turtles, **mistake plastic waste for prey, and most die of starvation as their stomachs are filled with plastic debris.**

Challenges in eliminating single-use plastics

- As plastic is **cheap and have multipurpose uses** so it difficult eradicating single use plastic from the supply chain.
- Lack of **fund and hurdles in technology transfer.**
- **Developed country are not taking responsibility** and are generally using the developing countries to dump their plastic waste in the name of recycling.
- **Lack of solidarity among stakeholders** especially among first hand consumers.

Effective Solutions to Plastic Pollution

- Only way this problem can be addressed is by individuals and companies around the world, agreeing to implement practices that reduce waste on every level.



- Reduce Use of Single-Use Plastics: The best way to do this is by

a) refusing any single-use plastics (e.g. straws, plastic bags, takeout utensils, takeout containers), and

b) purchasing, and carrying reusable versions of those products, including reusable grocery bags, produce bags, bottles, utensils, coffee cups, and dry cleaning garment bags.

- Recycle Properly: At present, just 9% of plastic is recycled worldwide. Recycling helps keep plastics out of the ocean and reduces the amount of "new" plastic in circulation.
- **Enact laws to bans on single use plastic bags,** for ex Plastic Waste Management Rules, 2016 enacted by Indian government.
- Participate In (or Organize) a Beach or River Cleanup regularly.

Plastic Waste Management Rules, 2016

- It aims to **increase minimum thickness of plastic carry bags from 40 to 50 microns**.
- Expand the jurisdiction of applicability from the municipal area **to rural areas**, because plastic has reached rural areas also.
- **Extended Producer Responsibility**: To bring in the responsibilities of producers and generators, both in plastic waste management system and to introduce collect back system of plastic waste by the producers/brand owners, as per extended producers responsibility
- **Introduced collection of plastic waste management fee** through pre-registration of the producers, importers of plastic carry bags/multilayered packaging and vendors selling the same for establishing the waste management system
- Promote **use of plastic waste for road construction** as per Indian Road Congress guidelines or energy recovery, or waste to oil etc. for gainful utilization of waste and also address the waste disposal issue.

MAJOR ENVIRONMENT ORDERS
Guidelines for Uniform Framework for Extended Producers Responsibility (EPR) under Plastic Waste Management Rules - India
Plastic Waste Management Rules
Special environmental squads have been set up in 22 states / UTs to oversee and ensure that no litter of plastic waste takes place at public places as well as dumping of plastic waste in drains, rivers, banks and sea.
The regime for levying environmental compensation (EC) for violation of plastic waste management rules has been framed by the CPCB and the same would be revisited, if required, after finalisation of EPR framework by MoEF&CC.
Compliance reports submitted by the 25 states and UTs to the CPCB said the production of carry bags and plastic sheets of thickness of less than 50 micron had been banned.

PONG DAM SANCTUARY

GS-III ENVIRONMENT

Context

- Over 1700 migratory birds in Himachal Pradesh's famous Pong Dam sanctuary were found dead under mysterious circumstances.
- Over 95 per cent of birds found dead are **Bar Headed Geese** who migrate from Siberia and Mongolia.

Maharana Pratap Sagar or Pong Reservoir or Pong Dam Lake

- It was created in 1975, by building the highest **earthfill dam in** India on the **Beas River** in the wetland zone of the Siwalik Hills of the state of Himachal Pradesh.
- Named in the honour of Maharana Pratap (1540–1597), the reservoir or the lake is a well-known wildlife sanctuary and one of the 27 international wetland sites declared in India by the **Ramsar Convention.**

- The **Pong Reservoir and Gobindsagar Reservoir** are the two most important fishing reservoirs in the Himalayan foothills of Himachal Pradesh.

Bar Headed Geese

- One of the **highest-flying birds of the world**, the Bar Headed Goose has been sighted flying above Mount Everest.
- They are high-altitude birds breeding in the high places, but during winter, they come down.
- They nest mainly on the **Tibetan Plateau**.
- The bar-headed goose migrates over the Himalayas to spend the winter in parts of South Asia (from Assam to as far south as Tamil Nadu.
- The bird seems to have established **Pong Dam Lake, as the 'capital' of its winter kingdom**, year after year, as sights of crowded flocks of Bar Headed Geese, squatting beak-to-tail, are not uncommon.
- The wetland is said to hold the record for hosting the **largest congregation of Bar-headed Geese.**

Range

- The Bar-Headed Goose has an extremely large range and can be found in Afghanistan, Bangladesh Bhutan, China, India; Mongolia; Myanmar; Nepal; Pakistan; Russia, Thailand and Vietnam.
- They have also been introduced to Canada and Spain.

Habitat

- These geese prefer high altitude mountain lakes.

Population

- Global: Their world population is very large with at least 10,000 mature individuals. Their global population appears to be declining but none of their sub-populations is severely fragmented.

Status

- IUCN: Least concern
- CITES: Not listed
- USFWS: Not listed

CAFE-2 AND BS-VI STAGE-II

GS-III ENVIRONMENT

Context

- Automakers seek relief on new fuel efficiency, emission norms
- Industry has requested the government to defer the implementation of fuel efficiency norms and second stage of emission norms to **April 2024**, in a bid to keep the cost of acquisition stable.

Pandemic disruption: Seeking more time for transition

- Shifting to **Corporate Average Fuel efficiency (CAFE-2)** regulations and BS-VI stage II would not only become more difficult for the auto industry amid the pandemic-led disruption but also raise cost of acquisition.
- In the current sales scenario, a further rise in acquisition costs for consumers could add to the concerns.
- The primary reason for that has been the sharp rise in cost of acquisition of cars in India.

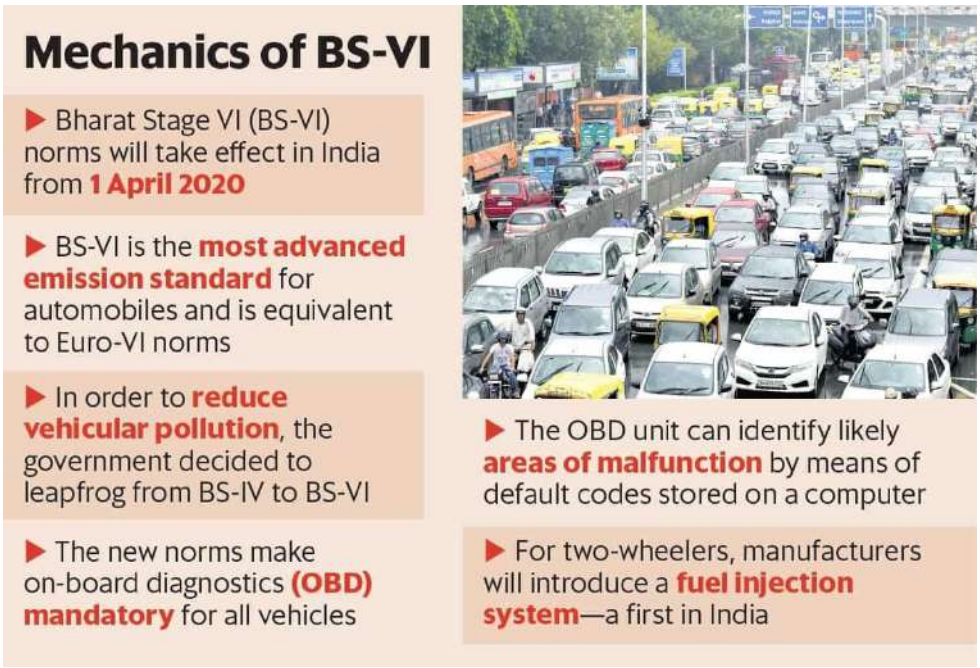
- Almost 50 per cent of the car buyers in India are first-time buyers and since price elasticity for car purchase is high in India, it is a major factor for slowdown in growth
- In European markets, the **transition** from **Euro 4 to Euro 6 took 9 years**, but in India the shift happened in just a period of **three years** and since all the cost is passed on to the consumer, it takes up the acquisition cost significantly.
- Besides, high tax rates, rising service tax, and insurance cost has also taken the acquisition cost higher for customers.
- The CAFE-2 norms that **aim to make cars more fuel efficient** are set to come into effect in 2022 and BS-VI stage II norms are set to come into force beginning April 2023.

What is CAFÉ norms?

- CAFE or Corporate Average Fuel Efficiency/Economy regulations are in force in many advanced as well as developing nations, including India.
- They **aim at lowering fuel consumption (or improving fuel efficiency) of vehicles by lowering carbon dioxide (CO2) emissions, thus serving the twin purposes of reducing dependence on oil for fuel and controlling pollution**.
- Corporate Average refers to sales-volume weighted average for every auto manufacturer.
- The norms are **applicable for petrol, diesel, LPG and CNG passenger vehicles.**
- CAFE regulations in India came into force from April 1, 2017. Under this, average corporate CO2 emission must be less than 130 gm per km till 2022 and below 113 gm per km thereafter.

Why is it important?

- Pollution caused by vehicles on road is worsening the air quality in many cities.
- Upgrading to stricter fuel standards is one way to tackle air pollution.
- **CAFE regulations assume importance in the light of their ability to reduce the carbon footprint of the auto industry.**
- The **National Auto Policy (draft)** put out in early 2018 calls for developing a roadmap for reduction in CO2 emissions through CAFE regulations.
- It calls for defining corporate average CO2 gm per km targets for all passenger vehicle manufacturers from 2020 and aspires to match Indian CO2 reduction targets to those set by developed countries by 2025.
- The Auto Policy also contemplates economic penalties for manufacturers who do not meet corporate average targets and envisages a system where credits under the scheme (for achieving better than mandated fuel efficiency) can be banked and traded.
- Stricter CAFE targets can also lead to manufacturers moving to electric or strong hybrid vehicles over the medium to long-term to comply with the norms.
- Alongside the implementation of the BS VI emission norms and the plan to shift to mass use of electric vehicles by 2030, the CAFE regulation is one of the steps taken by the government to breathe cleaner air.


Mechanics of BS-VI
▶ Bharat Stage VI (BS-VI) norms will take effect in India from 1 April 2020
▶ BS-VI is the most advanced emission standard for automobiles and is equivalent to Euro-VI norms
▶ In order to reduce vehicular pollution, the government decided to leapfrog from BS-IV to BS-VI
▶ The new norms make on-board diagnostics (OBD) mandatory for all vehicles
▶ The OBD unit can identify likely areas of malfunction by means of default codes stored on a computer
▶ For two-wheelers, manufacturers will introduce a fuel injection system—a first in India

CAFÉ Vs BS VI regulation

- While **CAFE regulations focus on reducing CO2 emissions, BS VI focuses on other harmful exhaust from vehicles.**
- The BS IV-compliant fuel currently in use has 50 parts per million (ppm) sulphur.
- However, **BS VI stipulates a low 10 ppm. Besides, under BS VI, particulate matter emission for diesel cars and nitrogen oxide levels** are expected to be substantially lower than in BS IV.
- A mass shift to electric vehicle use will also bring down air pollution substantially.
- To encourage manufacture and sale of electric vehicles, the government is already providing incentives under **FAME (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles) scheme.**

SAATHEE PORTAL

GS-III ENVIRONMENT

Context

- Bureau of Energy Efficiency (BEE) launched the SAATHEE (State-wise Actions on Annual Targets and Headways on Energy Efficiency) portal.

SAATHEE portal

- SAATHEE (State-wise Actions on Annual Targets and Headways on Energy Efficiency) – is a portal for **State Designated Agency (SDA) for state level activities in the energy conservation sphere.**
- BEE developed the **Management Information System (MIS) portal**, with the **main objectives** of the web-portal being:
  - It will be useful in capturing the physical and financial status/ progress of Energy Efficiency activities being implemented by States/ UTs across the country.
  - It will **facilitate real-time monitoring of the progress of implementation of all the Energy Efficiency and Energy Conservation endeavors** such as demonstration projects, awareness campaigns, capacity building workshops, etc. being carried out by SDAs at the state-level.
  - It will also help in **decision making, coordination, control, analysis, and implementation and enforcement** of the compliance process for various energy consumers at the pan India level.
  - This MIS portal would present the physical and financial progress of SDAs in the form of multiple reports and provide tracking of progress made by the SDAs
  - The portal shall also facilitate BEE in providing information regarding best practices, major achievements and upcoming important events of each SDA.
- The Star Labeling Programme for Air Compressor and UHD TV was also launched on a voluntary basis.
- With the energy consumption standards coming into effect from January 1, 2021.

Bureau of Energy Efficiency (BEE)

- The Government of India set up Bureau of Energy Efficiency (BEE), under the provisions of the **Energy Conservation Act, 2001**.
- Its **mission** is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001 with the primary objective of **reducing energy intensity of the Indian economy**.

Role of BEE

- BEE co-ordinates with designated consumers, designated agencies and other organizations and recognize, identify and utilize the existing resources and infrastructure, in performing the functions assigned to it under the Energy Conservation Act.
- The Energy Conservation Act provides for regulatory and promotional functions.

Functions of BEE include

- Create awareness and disseminate information on energy efficiency and conservation
- Arrange and organize training of personnel and specialists in the techniques for efficient use of energy and its conservation
- Strengthen consultancy services in the field of energy conservation
- Promote research and development
- Develop testing and certification procedures and promote testing facilities
- Formulate and facilitate implementation of pilot projects and demonstration projects
- Promote use of energy efficient processes, equipment, devices and systems
- Take steps to encourage preferential treatment for use of energy efficient equipment or appliances
- Promote innovative financing of energy efficiency projects
- Give financial assistance to institutions for promoting efficient use of energy and its conservation
- Prepare educational curriculum on efficient use of energy and its conservation
- Implement international co-operation programmes relating to efficient use of energy and its conservation.

LIGHT COMBAT AIRCRAFT TEJAS

GS-III SECURITY

Context

- Government cleared the Rs 48,000-crore deal for 83 LCA (Light Combat Aircraft) Tejas aircraft,
- It will see a greater collaboration between state-owned Hindustan Aeronautics Limited (HAL) and private firms as part of 'Make in India'.
- Of these 83 aircraft, HAL will deliver 73 Tejas Mk 1A and 10 Tejas Mk 1 trainers by 2026.
- **Tejas will only be the second indigenously built fighter aircraft in India's history**.

Tejas' history

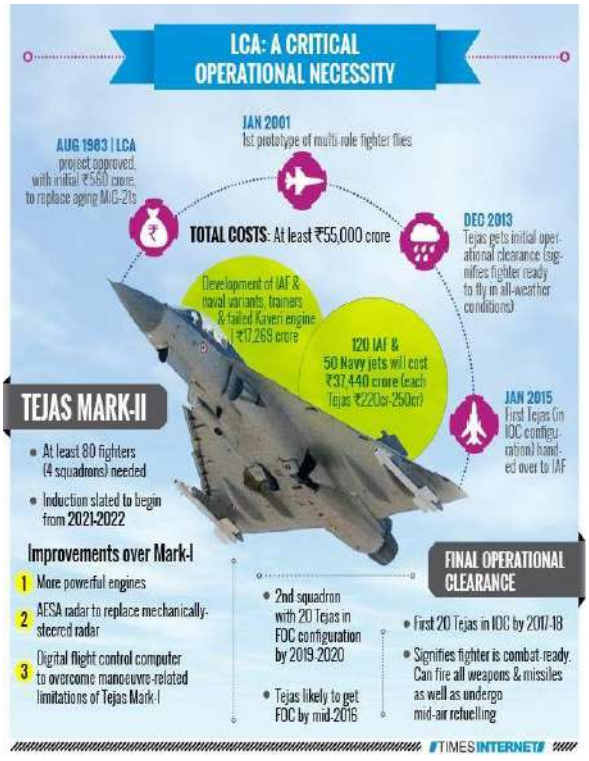
- 1983 was the first time when the Government of India cleared a project to build a new Light Combat Aircraft as a **replacement for MiG 21s.**
- India's **project to build the engine 'Kaveri'** for a Light Combat Aircraft **failed**.
- **Tejas is 50 per cent indigenous**. It has a **GE American engine**, an **Israeli Elta radar, and British aerospace, avionics, and other engines.**

India's misadventures with fighter aircraft

- India has also had a chequered history with fighter aircraft in general.
- By the mid-1950s, as India's relationship with Pakistan was tanking, Nehru sought advanced technologies to fight the Pakistanis.
- India employed a German aeronautical engineer who built the **HAL HF-24 Marut**, an **indigenously built fighter-bomber aircraft.**
- Marut was supposed to be of supersonic speed but could never surpass the speed of sound. This is largely because of the **'technology denial'** era. Nobody would sell India a decent engine.
- India then started fitting two Orpheus engines into one Marut. Therefore, the aircraft had two subsonic engines and always remained underpowered.
- As many as 147 Maruts were produced and they played an essential ground support role in the 1971 war with Pakistan.
- By 1975, however, this **programme was suspended**, and the Maruts were sold for scraps.

About Tejas

Tejas to add teeth to Indian air combat
Tejas
Indigenously developed Light Combat Aircraft (LCA), Tejas has been formally inducted to Indian Air Force. The induction occurred almost 15 years after its first test flight and 33 years after the project was taken up
Project first conceived and launched in 1983
Maiden test flight took place on Jan 4, 2001
Designed for air-to-air, air-to-ground and air-to-sea combat roles
Intended to replace the phased out MiG-21 fighter jets
Specifications (LCA AF MK2)
Crew One
Length 13.7 m
Height 4.4 m
Wingspan 8.2 m
Max speed 1.6 mach
Engine GE-F414-INS6
Smallest and lightest multi-role supersonic fighter aircraft of its class
Project executed by Aeronautical Development Agency (ADA) along with Hindustan Aeronautics Limited (HAL)
First advance Fly-by-wire (FBW) fighter aircraft designed, developed and manufactured in India
Inducted on July 1, 2016 into Squadron No. 45 of IAF, also called the "Flying Daggers"
KBK Infographics


LCA: A CRITICAL OPERATIONAL NECESSITY
AUG 1983 | LCA project approved, with initial ₹560 crore, to replace aging MiG-21s
JAN 2001 1st prototype of multi-role fighter flies
TOTAL COSTS: At least ₹55,000 crore
DEC 2013 Tejas gets initial operational clearance (signifies fighter ready to fly in all-weather conditions)
Development of IAF & naval variants, trainers & failed Kaveri engine ₹17,269 crore
120 IAF & 50 Navy jets will cost ₹37,440 crore (each Tejas ₹220cr-250cr)
JAN 2015 First Tejas (in IOC configuration) handed over to IAF
TEJAS MARK-II
At least 80 fighters (4 squadrons) needed
Induction slated to begin from 2021-2022
Improvements over Mark-I
1 More powerful engines
2 AESA radar to replace mechanically-steered radar
3 Digital flight control computer to overcome manoeuvre-related limitations of Tejas Mark-I
2nd squadron with 20 Tejas in FOC configuration by 2019-2020
Tejas likely to get FOC by mid-2016
FINAL OPERATIONAL CLEARANCE
First 20 Tejas in IOC by 2017-18
Signifies fighter is combat-ready. Can fire all weapons & missiles as well as undergo mid-air refuelling
TIMES INTERNET

DEEPFAKES

Context

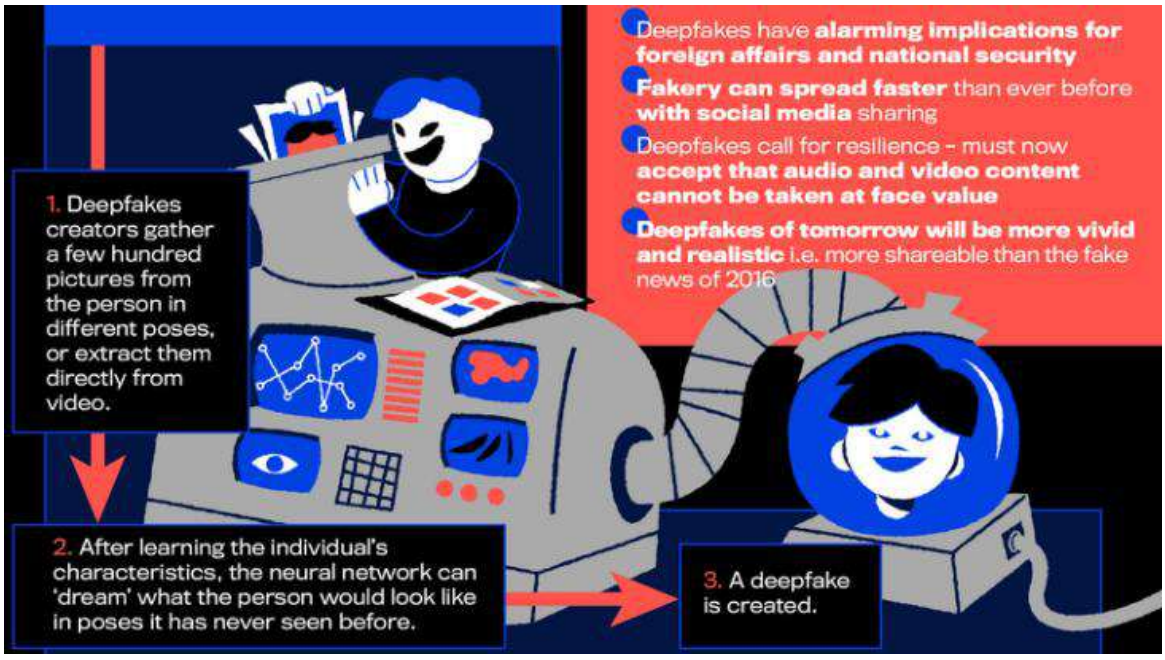
- We need AI-backed technological tools to detect the unreal

Story so far

- The protesters who created chaos in Capitol Hill on January 6 believe that the 2020 U.S. election was stolen by the Democrats.
- This is largely due to misinformation and disinformation of which deepfakes are a part.
    - Deepfakes—synthetic media, meaning media (including images, audio and video) that are either manipulated or wholly generated by Artificial Intelligence — even have the power to threaten the electoral outcome of the world's oldest democracy.

Fabricating content

- The cyber world has been facing the challenge of deepfakes for a while now.
- **AI is used** for fabricating audios, videos and texts to show real people saying and doing things they never did, or creating new images and videos.
- These are done so convincingly that it is hard to detect what is fake and what is real.
- Detection can often be done **only by AI-generated tools**.
- Deepfakes can target anyone, anywhere. They are used to **tarnish reputations, create mistrust, question facts, and spread propaganda.**
- According to **Section 230 of the Communications Decency Act of 1996,** a law that protects freedom of expression and innovation on the Internet, "**No provider or user** of an interactive computer service **shall be treated as the publisher or speaker** of any information provided by another information content provider."
- This means that the **companies are not responsible** for the posts on their platforms.


Deepfakes have alarming implications for foreign affairs and national security
Fakery can spread faster than ever before with social media sharing
Deepfakes call for resilience - must now accept that audio and video content cannot be taken at face value
Deepfakes of tomorrow will be more vivid and realistic i.e. more shareable than the fake news of 2016
1. Deepfakes creators gather a few hundred pictures from the person in different poses, or extract them directly from video.
2. After learning the individual's characteristics, the neural network can 'dream' what the person would look like in poses it has never seen before.
3. A deepfake is created.

Adverse impact of deepfake

- It has alarming implication **on national security, foreign affairs and safety & security of women and children.**
- Another area of concern is **financial scams.** Audio deepfakes have already been used to clone voices and convince people they are talking to someone trusted and defraud them.
- It breaches **privacy of the people and reduces trust in society**.
- **Issues of identity theft** is also a concern.

India's condition

- India also faces the same problem.
- So far, it **has not enacted any specific legislation** to deal with deepfakes, though there are some provisions in the **Indian Penal Code** that **criminalise certain forms of online/social media content** manipulation.
- The **Information Technology Act, 2000** covers certain cybercrimes.
- However, this law and the **Information Technology Intermediary Guidelines (Amendment) Rules, 2018** are **inadequate** to deal with content manipulation on digital platforms.
- In 2018, the government proposed rules to curtail the misuse of social networks.
- Social media companies voluntarily agreed to take action to prevent violations during the 2019 general election.
- The Election Commission issued instructions on social media use during election campaigns.
- However, reports show that social media platforms like WhatsApp were used as "vehicles for misinformation and propaganda" by major political parties during the election.

New tools

- This is worrying as existing laws are clearly inadequate to safeguard individuals and entities against deepfakes and **only AI-generated tools can be effective in detection**.
- As innovation in deepfakes gets better, AI-based automated tools must be invented accordingly.
- **Blockchains are robust against many security threats** and **can be used to digitally sign and affirm the validity of a video or document.**
- **Educating media users** about the capabilities of AI algorithms could help.

Measures in place to prevent deepfake technology from adversely affecting masses?

- In July 2020, the University of Washington and Microsoft convened a workshop with experts to discuss how to prevent deepfake technology from adversely affecting us.
- The workshop identified six themes:
  - deepfakes must be **contextualised** within the broader framework of malicious manipulated media, computational propaganda and disinformation campaigns;
  - deepfakes cause multidimensional issues, which **require a collaborative, multi-stakeholder response that require experts in every sector to find solutions**;
  - detecting deepfakes is hard;
  - journalists **need tools to scrutinise images**, video and audio recordings for which they need training and resources;
  - **policymakers must understand how deepfakes can threaten polity, society, economy, culture, individuals and communities**; and
  - the idea that the mere existence of deepfakes causes enough distrust that any true evidence can be dismissed as fake is a major concern that needs to be addressed.

Conclusion

- In today's world, disinformation comes in varied forms, so no single technology can resolve the problem.
- As deepfakes evolve, AI-backed technological tools to detect and prevent them must also evolve.

REALSENSE ID

GS-III SECURITY

Context

- Intel unveils tech for secure face authentication at ATMs, kiosks

RealSense ID

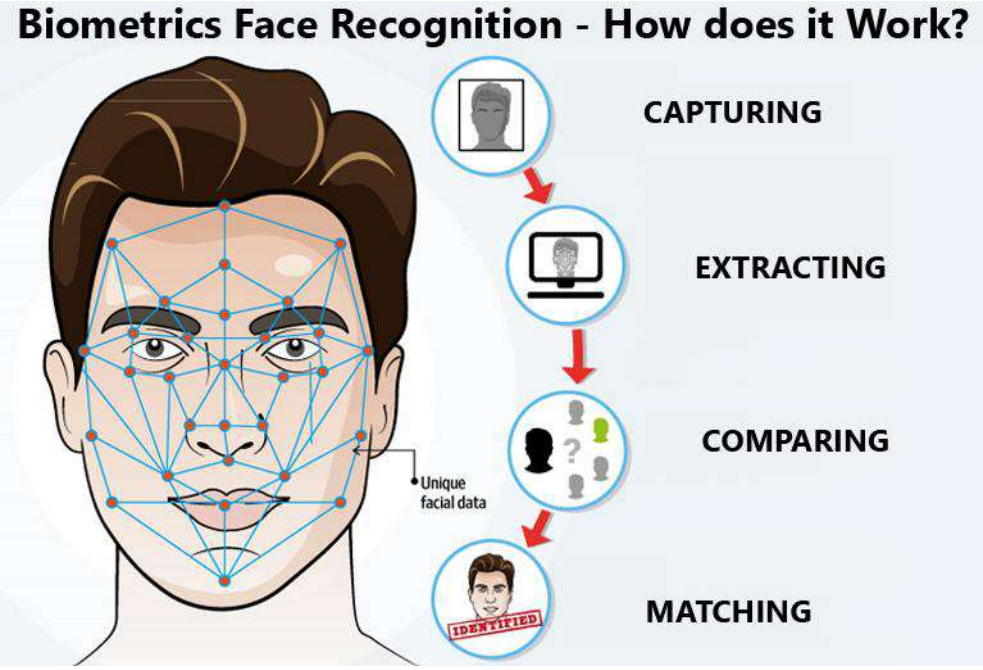
- It provides **on-device solution combining active depth sensor** with a **specialised neural network** designed to **deliver secure, accurate and user-aware facial authentication.**

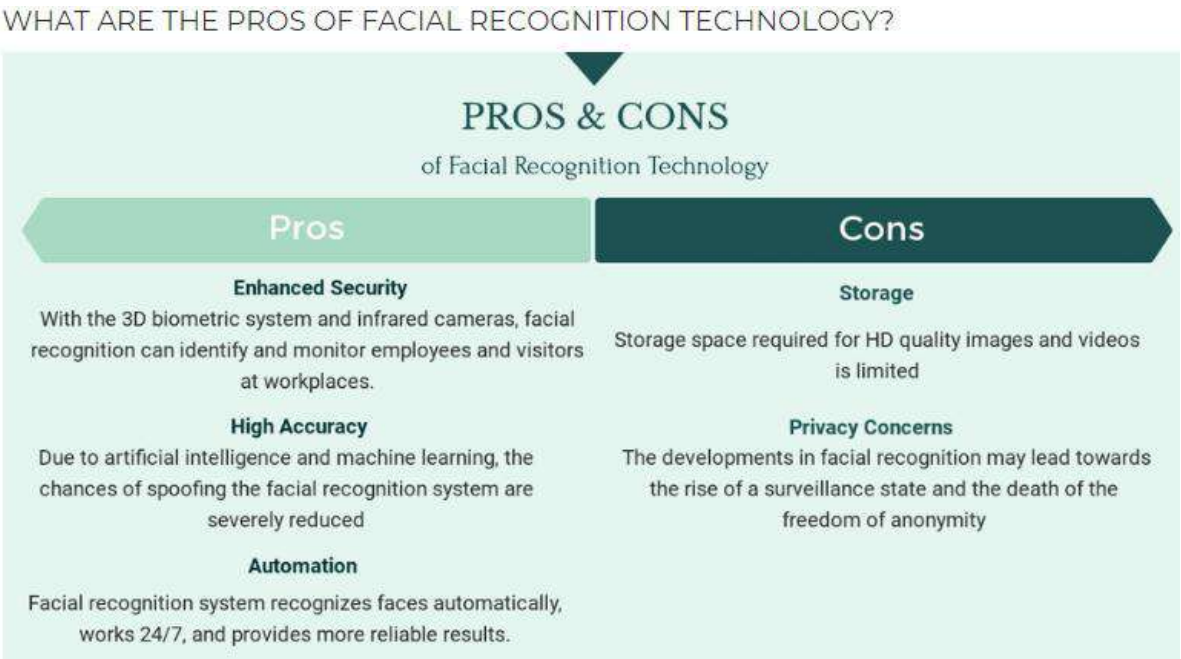
- This new facial recognition camera system aimed at bringing safe **Face ID biometric system to ATMs, kiosks and smart locks.**
- It offers depth and tracking technologies used in autonomous drones, robots, AR/VR, and smart home devices.
- It adapts to users over time as they change physical features, such as facial hair and glasses.
- It works in different lighting conditions for people with a wide range of heights or complexions.
- It is built up with an **anti-spoofing technology** to prevent false entry attempts using photographs, videos or masks.
- The tech firm claims that it processes all facial images locally and encrypts all user data.

What is face recognition technology?

- A facial recognition system is a technology capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image.

How does it work?




WHAT ARE THE PROS OF FACIAL RECOGNITION TECHNOLOGY?
PROS & CONS
of Facial Recognition Technology
Pros
Cons
Enhanced Security
With the 3D biometric system and infrared cameras, facial recognition can identify and monitor employees and visitors at workplaces.
High Accuracy
Due to artificial intelligence and machine learning, the chances of spoofing the facial recognition system are severely reduced
Automation
Facial recognition system recognizes faces automatically, works 24/7, and provides more reliable results.
Storage
Storage space required for HD quality images and videos is limited
Privacy Concerns
The developments in facial recognition may lead towards the rise of a surveillance state and the death of the freedom of anonymity

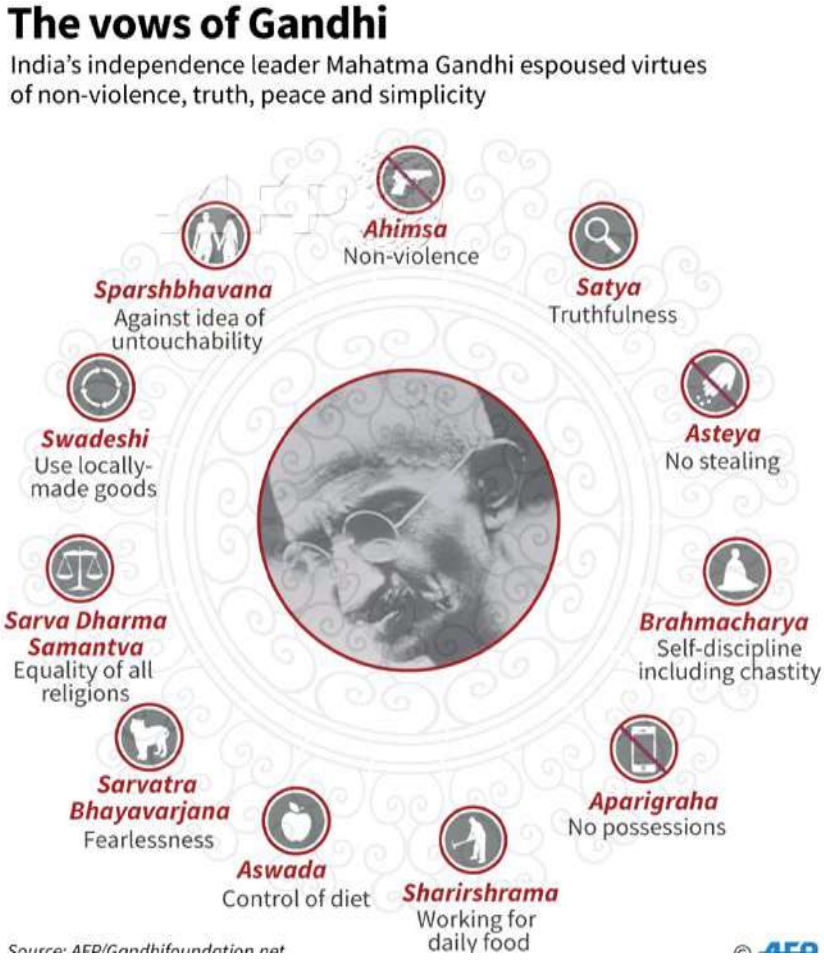
MARTYR'S DAY: RELEVANCE OF BAPU' S IDEALS

GS-IV ETHICS

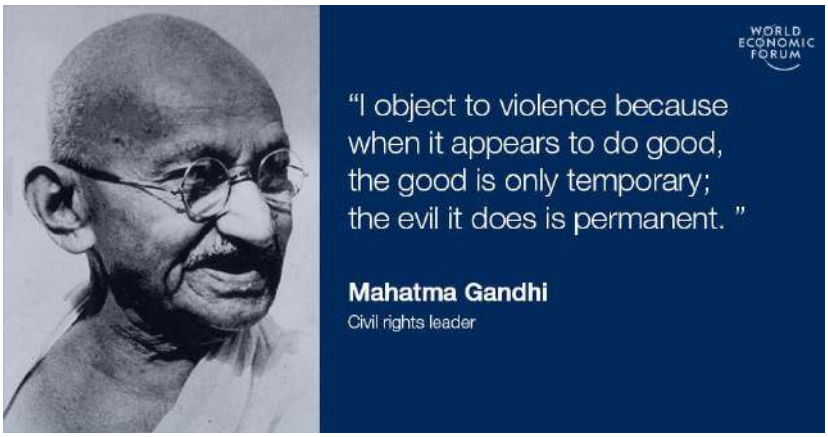
Introduction

- 30th January or Martyrs' Day marks the assassination of Gandhiji in 1948.
- The day serves as a reminder to us of the leadership of Mahatma Gandhi - India's apostle of peace.
- Gandhiji stands tall as a guiding light of truth, non-violence, humanity and compassion in the firmament of the greatest world leaders of all time.

The core ideals of Gandhiji



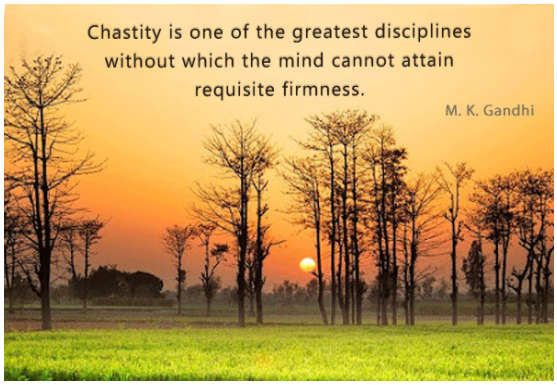
Ahimsa (Non-violence)


WORLD ECONOMIC FORUM
"I object to violence because when it appears to do good, the good is only temporary; the evil it does is permanent."
Mahatma Gandhi
Civil rights leader

- Mahatma Gandhi's name will always be synonymous with non-violence, so much so that the term "non-violence" is mentioned as "Gandhian".
- Gandhiji's principle of Ahimsa was based on the idea of non-violence and compassion.
- In the face of colonial violence, he proposed responding with non-violence.
- To his mind, a calm, nonviolent response lowers the anger and frustration of the aggressor.
- In his various campaigns Gandhiji practiced nonviolence as a means to bring about political and social change.

Satya (Truth)

- As per S. E. Jone's, "Gandhi, Portrayal of a Friend"; Gandhiji held the truth as God, and felt it to be integral to Satyagraha.
- Describing Satya, he once said,
  The world rests upon the bedrock of truth;
  untruth also means "nonexistent"
  Its victory is out of the question. And truth can never be destroyed. This is the doctrine of Satyagraha in a nutshell.
- Devotion to this Truth is the sole justification for our existence. All our activities should be centered in Truth. Truth should be the very breath of our life.



Brahmacharya (Self Discipline)

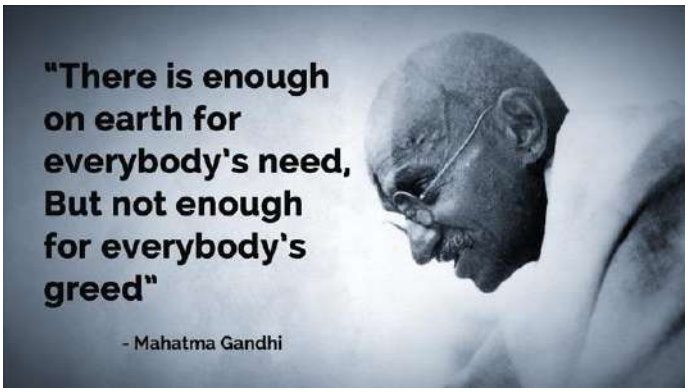
- In one of his letters Gandhiji says,

"He who attempts to control only one organ, and allows all the others free play is bound to find his effort futile."

Asteya (Non Stealing)

- Asteya is not just restricted to not stealing from others but as a concept based on our needs.
- As per Bapu, humans are not always knowledgeable of their needs, and hence end up multiplying our wants and thus, make ourselves "thieves."

Aparigraha (Non-possession)



- At the basic level, non-possession means desisting from hoarding of goods.
- Hoarding of goods and commodities deprive the poor of their basic needs.
- Secondly, aparigraha connotes reducing one's needs and wants beyond bare minimum.
- As the lesser one wants, the better off one is, because he then is content with whatever he has with him.
- The ultimate stage of non-possession is no possession.
- In this state, there are no material possessions which lead to cultivating detachment.
- This attitude and way of life paves the way for spiritual liberation which is the ultimate goal of a human's life.

Sharirshrama (Physical Labour)

- Bapu, wrote in Young India, in November 1925,

"Earn thy bread by the sweat of the brow- says Bible."

- Man can be saved from injuring society, as well as himself, only if he sustains his physical existence by physical labour.
- Able-bodied adults should do all their personal work themselves, and should not be served by others, except for proper reasons.

Aswada (Control of the Palate)

- Besides a healthy mind, the leader was also very particular about abstaining from gluttony.
- Eating is necessary only for sustaining the body and keeping it a fit instrument for service, and must never be practiced for self-indulgence.

- Food must therefore be taken, like medicine, under proper restraint. In pursuance of this principle one must eschew exciting foods.
- Meat, liquor, tobacco, bhang etc. should be excluded. This principle requires abstinence from feasts or dinners which has pleasure as their object.

Sarvatra Bhayavarjana (Fearlessness)

- One cannot follow Truth or Love so long as one is subject to fear.
- He spoke of Fearlessness as thus in November 1946,

"Fear does not mean arrogance and aggressiveness. That in itself is a sign of fear. Fearlessness presupposes calmness and peace of mind. For that it is necessary to have a living faith in God."

Sarva Dharma Samantva (Equality of the religions)

- Gandhiji stood for equality of the religions. His views have had profound influence on the Indian psyche and also reflect in the Fundamental Rights of the Indian Constitution.
- He said "For I believe in the fundamental truth of all great religions of the world"

Swadeshi (Use Locally Made Goods)

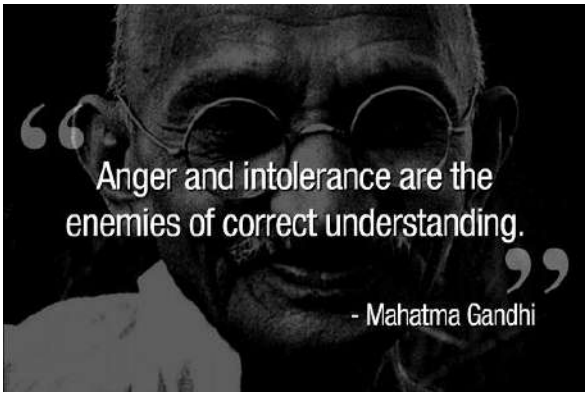
- Man serves the world best by first serving his neighbour. This is Swadeshi.
- Following this principle, one must as far as possible purchase one's requirements locally.
- One should not buy things imported from foreign lands, which can easily be manufactured in the country.
- There is no place for self interest in Swadeshi.
- Swadeshi enjoins the sacrifice of oneself for the family, of the family for the village, of the village for the country, and of the country for humanity.

Asprishyatanivarana – Removal of Untouchability

- According to Gandhiji, Untouchability, which had taken such deep root in Hinduism, is altogether irreligious.
- Its removal has therefore been treated as an independent principle.

Tolerance

- According to Gandhiji, the golden rule of conduct is "Mutual Toleration."
- We need to acknowledge that we will never all think alike and we shall see Truth in fragment and from different angles of vision.
- Conscience is not the same thing for all.
- Therefore, it is a good guide for individual conduct. But imposition of that conduct upon all will be an insufferable interference with everybody's freedom of conscience.

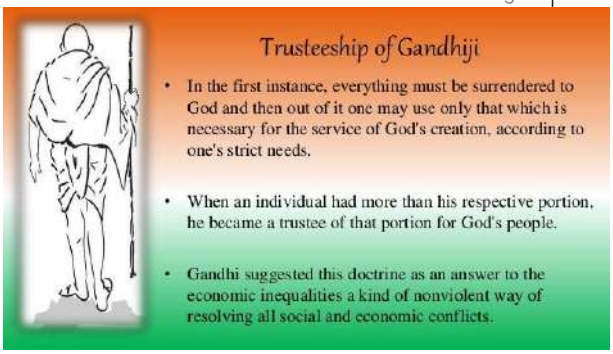


Sarvodaya

- Sarvodaya means "the welfare of all."
- The term was first coined by Mohandas Gandhi as the title of his 1908 translation of John Ruskin's tract on political economy, "Unto This Last".
- Sarvodaya movement is the movement which aims at rural reconstruction and uplifting the people of rural India by peaceful and co-operative means.
- Sarvodaya stresses on coexistence and mutual love.

Trusteeship

- It is a socio-economic philosophy propounded by Mahatma Gandhi.
- It provides a means by which the wealthy people would be the trustees of trusts that looked after the welfare of the people in general.


Trusteeship of Gandhiji
In the first instance, everything must be surrendered to God and then out of it one may use only that which is necessary for the service of God's creation, according to one's strict needs.
When an individual had more than his respective portion, he became a trustee of that portion for God's people.
Gandhi suggested this doctrine as an answer to the economic inequalities a kind of nonviolent way of resolving all social and economic conflicts.

Ram Rajya

- 'Ram Rajya' envisages a society in which virtue, morality and justice are the core ideals around which day-to-day interactions between citizen and citizen and; state and citizen occur.
- Gandhi said that for him a true Ram Rajya would ensure "equal rights to both prince and pauper".

Gramaraj

- Gandhiji wanted to see each village:
  - ✓ a little republic,
  - ✓ self-sufficient in its vital wants,
  - ✓ organically and non-hierarchically linked with the larger spatial bodies and
  - ✓ enjoying the maximum freedom of deciding the affairs of the locality.
- Gandhi wanted political power to be distributed among the villages in India. Gandhi preferred the term 'Swaraj' to describe what he called true democracy.

Satyagraha

- Satyagraha or holding firmly to truth, or truth force, is a particular form of nonviolent resistance or civil resistance. Someone who practices satyagraha is a satyagrahi.
- The term satyagraha was coined and developed by Mahatma Gandhi.
- Satyagraha means the exercise of the purest soul-force against all injustice, oppression and exploitation.
- He deployed satyagraha in the Indian independence movement and also during his earlier struggles in South Africa for Indian rights.

Cleanliness

- Mahatma Gandhi believed that a strong country could only be built on the shoulders of cleanliness.
- Gandhiji termed cleanliness next to only godliness and rightly so.

Gandhiji's Influence

- Gandhiji's ideals inspired great men across the world, including Martin Luther King Jr. and Nelson Mandela.
- Gandhiji also served as an inspiration to Albert Einstein, Barack Obama, Pearl Buck and Steve Jobs, among others.
- Bapu successfully weaponised truth, satyagraha and peace in his helmsmanship of India's struggle for independence, marked by tidal waves of peaceful protests.
- But the persistent question is -

"How far are these ideas of nonviolence and truth that won us our liberty, relevant in today's day and age?"

Let's find out…

Relevance of Gandhiji's values in 21st century

Some of the Gandhian principles hold universal relevance.

Need for Tolerance and Peace

- Each year, over 1.6 million people worldwide lose their lives to violence.

- Violence is among the leading causes of death for people worldwide.
- It accounts for 14% of deaths among males and 7% of deaths among females - WHO's World report on violence and health.
- Violence ranges from physical, sexual, reproductive to mental health problems.
- Millions of lives are lost every year amid conflict zones. Example- Yemen and Afghanistan.
- Violence places a massive burden on national economies, costing countries billions of dollars each year in health care, law enforcement and lost productivity.
- In world that is moving through the phases of war marred by violence and naked dance of death of common people due to the menace of terrorism there is a significant requirement of Gandhian idea of Non- violence more and more today than the past days.

Sarvodaya

- According to the recent WEF'S "Global Social Mobility Report 2020: Equality, Opportunity and a New Economic Imperative" Report: Indians born in low-income family would take seven generations to even approach the country's mean income.
- Some 220 million Indians sustained on an expenditure level of less than Rs 32 / day — the poverty line for rural India — going by the last headcount of the poor in India in 2013.
- It is necessary that each individual renders back unto society what he/she, owes to society.
- Gandhiji's political order of Sarvodaya encompassing Swaraj, Panchayat Raj, Decentralization and more importantly a non-violent statehood will be the basis for the solution to ailing communities all over the world.

Self reliance (Swadeshi)

- Globalization and consumerism have in fact made people's lives tougher.
- The gulf between the rich and poor is widening day by day.
- Gandhian principle of self-sustenance and serving others is a significant requirement in present times as ever.
- This can be reflected in the "Atmanirbhar Bharat Abhiyaan" started by the Government.

Sustainable Environment

- Gandhji's environmental concerns were real and are taking shape in the present times. Gandhiji had said "Earth has enough for Human needs, But not for Human greeds"
- He was quite apprehensive of machinery production and industrialization, which will harm the environment.
- And here we are, living a deplorable life among the noxious fumes, polluted, and harmful gases released by these industries.
- We cut trees and harm the forest habitat, which harms the ecological balance.
- The world is whirling under the burden of global warming, climate change and resource crunch.
- The world, including the United Nation has recognized Gandhian idea of sustainable development.
- The recent inauguration of Gandhi Solar Park at the headquarters United Nations (UN) is a testimony to that.
- Behind all the climate deals, environmental conservation treaties and sustainable development goals of the UN Gandhian view self sustenance operates as driving philosophy.
- The need for sustainable development is quintessential in present times.

Secular Ideologies

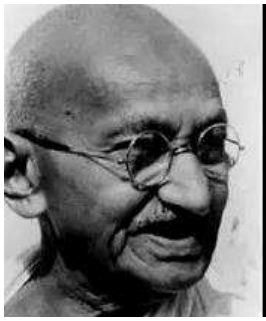
- The secular ideologies of Gandhiji are not only there in Indian constitution but also there in Indian society as a core value system.
- That is why so many people of diverse religions coexist in India.
- Today, the world today needs more and more tolerant people in societies where violence is committed in the name of religion.
- Tolerance in the society will help in neutralizing the ethnocentric bias in the globe that is taking place day by day on the basis of religion, caste, ethnicity and region etc.

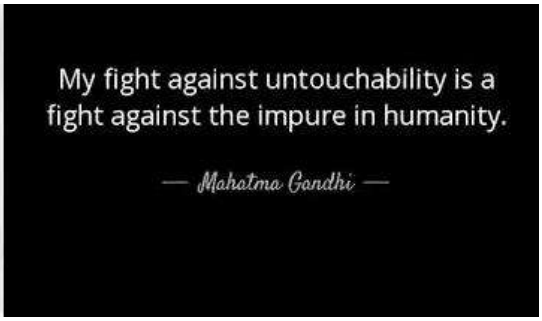
Democratic Decentralization:

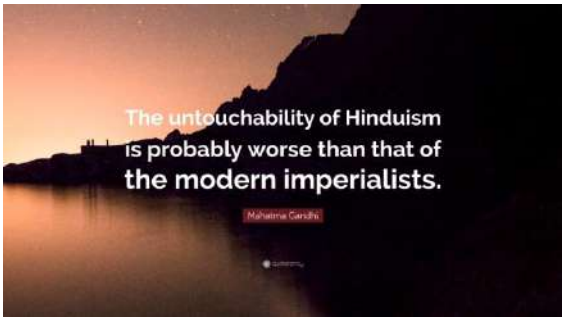
- Gandhi made it very dear that concentration of either economic or political power would violate all the essential principles of participatory democracy.
- To check centralization, Gandhi suggested the institution of village republics both as institutions of parallel polities and as units of economic autonomy. Village is the lowest unit of a decentralized system.
- Gandhian idea of decentralization of power is being implemented in democracies through empowered local self governments at grass root level.
- Indian government, for instance, have implemented local self government by adopting to Panchayati Raj and Municipality system in rural and urban areas respectively.

Casteless society

- Gandhi was against the caste system which is still a taboo in India.
- Even after 72 years of Independence and despite having reservations Indian society is grappling with casteism, communalism, regionalism and provincialism.
- Gandhiji wanted to eradicate untouchability and casteism from root and cause through the change in hearts of people.
- Thus, the Gandhian philosophy is useful create a casteless society where everyone is treated equally irrespective of their caste.







Trusteeship

- While India is one of the fastest growing economies in the world, it is also one of the most unequal countries. The top 10% of the Indian population holds 77% of the total national wealth—Oxfam Report.
- The Mahatma had suggested trusteeship as a concept where a certain part of an individual's wealth was held in trust for the greater good of society.
- Today, the concept of trusteeship, can work as antidote to potential deviations from public interest.

The ethics of Truth, Non-stealing and Non-possession

- According to the recent "Global Corruption Barometer – Asia" Report by Transparency International (TI), India has the highest overall bribery rate (39%) and the highest rate of citizens using personal connections (46%).
- The country is riddled with the politician-bureaucrat-business nexus of corruption.
- Ethical approach of people in authority and transparency in service dispensation in institutions like education, law and order, judiciary and transport sectors, are imperative to curb this menace.
- And the answer lies in Gandhiji's Philosophy of Truth and Morality that alone can rehabilitate India's Moral Crisis.

Sanitation and Cleanliness

- Clean surroundings are a must for humans to exist as such an environment holds the promise of safeguarding our health to quite a degree against a plethora of often fatal diseases.
- It also helps in curbing mortality rates.
- The health of future generations depends on these factors.
- The Mahatma rightly said: "Sanitation is more important than independence".

- India has ranked a poor 168th out of 180 countries in the 2020 Environmental Performance Index (EPI), according to researchers at Yale and Columbia universities.
- Gandhiji had said, "Everyone must be his own scavenger," but modern-day India is anything but that.
- We have let the sanitation of the nation go to the gutter and sent the poorest of the poor to go clean it up, letting them die in the process.
- Hence, it is more important today than ever to imbibe the values upheld by the Father of the Nation when it comes to cleanliness.
- The government's Swachh Bharat Mission is a welcome move in this context.
- "So long as you do not take the broom and the bucket in your hands, you cannot make your towns and cities clean," Mahatma Gandhi famously said and his words are true even today.
- No matter how much money is allocated to the cleaning up of the country, it is only when the individual citizen will take this herculean task in his hands that we would be able to eliminate the ghoul of dirt from our lives.
- If we feel ashamed in cleaning the very filth we create, despite having modern methods of disposing of waste, then we have knowingly pushed the nation into a septic tank of apathy which will consume us all.
- Swachh Bharat Abhiyaan needs the Gandhian push if the nation has to become a cleaner and more disciplined one.

Conclusion

- Gandhian ideologies have become the lighthouse for Indian policy makers over the years.
- Starting from poverty alleviation to **Sarva Shiksha Abhiyan** and universal health care (Ayushman Bharat) to skill India programs everywhere the core inspiration comes from Gandhianism.
- National food security act of India to Obama Care policy of the United States of America Gandhian concept of socialism holds the key as a guiding principle.
- For each one of us, Gandhian principles of swadeshi, swachhata and sarvodaya should be our guidelines.
- Rather than indulging in a globalised lifestyle, we should endeavour to respond to Gandhiji's call for putting into practice a unique variant of "glocalisation".
- **Glocalisation means** - learning to experience the entire world within the precincts of our immediate village or neighbourhood.
- This is in line with the Upanishadic dictum "**viswam prushtam grame asmin anaathuram**."
- We should live in harmony with our environment, eschewing exploitative practices as far as possible.
- Every individual should follow the key Gandhian ideologies in their day to day life for a happy, prosperous, healthy, harmonious and sustainable future.

MISCELLANEOUS

GENERAL STUDIES-I

Mannathu Padmanabhan

Context

- Prime Minister, Shri Narendra Modi has paid tribute to Sri Mannathu Padmanabhan Ji on his jayanti.

About

- Mannathu Padmanabhan was an Indian social reformer and freedom fighter from Kerala.
- He is recognised as the founder of the Nair Service Society (NSS), which claims to represent the Nair community that constitutes 12.10% of the population of the state.
- Padmanabhan is considered as a visionary reformer who organised the Nair community under the NSS.
- He fought for social equality, the first phase being the Vaikom Satyagraha, demanding the public roads near the temple at Vaikom be opened to low caste Hindus.
- He took part in the Vaikom(1924) and Guruvayoor(1931) temple-entry Satyagrahas; the anti-untouchability agitations.
- He opened his family temple for everyone, irrespective of caste distinction.
- He became a member of the Indian National Congress in 1946 and took part in the agitation against Sir C. P. Ramaswamy Iyer's administration in Travancore.
- As the first president of Travancore Devaswom Board he revitalized many temples which had almost ceased to function.

G Kishan Reddy Committee

Context

- Centre has decided to form a committee to protect the language, culture and land of Ladakh and ensuring citizen's participation in the Union Territory's development.

About

- The Committee will be headed by the Minister of State for Home G Kishan Reddy and will include elected representatives from Ladakh, Ladakh Autonomous Hill Development Council, central government, and the Ladakh administration.

World's Oldest Cave Painting

Context

- Archaeologists have discovered the world's oldest known cave painting: a life-sized picture of a wild pig that was made at least 45,500 years ago in Indonesia.

About

- Measuring 136 by 54 centimeters (53 by 21 inches) the Sulawesi warty pig was painted using dark red ochre pigment.
- It has a short crest of upright hair, as well as a pair of horn-like facial warts characteristic of adult males of the species.
- There are two hand prints above the pig's hindquarters, and it appears to be facing two other pigs that are only partially preserved, as part of a narrative scene.
- Humans have hunted Sulawesi warty pigs for tens of thousands of years, and they are a key feature of the region's prehistoric artwork, particularly during the Ice Age.

Gavi Gangadhareshwara Temple

Context

- Recently, citizens celebrated Sankranti day and blocked the sun's rays from falling on the Shiva Linga at Gavi Gangadhareshwara Temple in Gavipuram.

About

- Gavi Gangadhareshwara Temple also Gavipuram Cave Temple, an example of Indian rock-cut architecture, is located in Bangalore in the state of Karnataka.
- The temple is famous for its mysterious stone discs in the forecourt and the exact planning allowing the sun to shine on shrine in certain time of the year.
- It was built in the 16th century by Kempe Gowda I, the founder of the city.
- This cave temple dedicated to Shiva in Bengaluru is a well visited temple.
- Built by Gautama Maharshi and Bharadwaja Muni in Vedic period.
- Renovated in the 16th century AD by Kempe Gowda, the founder of Bengaluru, Temple Gavi Gangadhareshwara is an architectural marvel.

Tripuri Risa

Context

- Tripura Chief Minister Biplab Kumar Deb and his government have been promoting the traditional Risa.

About

- Risa is a handwoven cloth used as a female upper garment, and also as headgear, a stole, or a present to express respect. As an upper garment, it is wrapped around the torso twice.
- The traditional Tripuri female attire comprises three parts — risa, rignai and rikutu.
- The traditional risa, a handwoven cloth used by the state's indigenous communities, is a signature identity of the state.
- The risa is used in religious festivals such as Garia Puja by tribal communities,
- The risa is being branded under the India Handloom Brand, Deb announced recently.

Further details

- Rignai is primarily worn as the lower garment and literally translates into 'to wear'. It can be understood as an indigenous variety of the sari of mainland India.
- Rituku is mainly used as a wrap, or like a 'chunri' or a 'pallu' of the Indian saree. It is also used to cover the head of newly married Tripuri women.
- These garments were traditionally handwoven. Handloom remains an integral part of the Tripuri household, even with the advent of powerloom-manufactured garments.

Time Capsule

Context

- Aligarh Muslim University (AMU) will bury a time capsule containing the history and achievements of the institution in front of the Victoria Gate on the campus.
- The AMU is completing 100 years of its establishment.

About

- A time capsule is a historic cache of goods or information, usually intended as a deliberate method of communication with future people, and to help future archaeologists, anthropologists, or historians.

AMU

- The university was established as the Muhammadan Anglo-Oriental College in 1875 by Sir Syed Ahmad Khan.
- The movement associated with Syed Ahmad Khan and the college came to be known as the Aligarh Movement, which pushed to realize the need for establishing a modern education system for the Indian Muslim populace.
- He considered competence in English and Western sciences necessary skills for maintaining Muslims' political influence.

- Khan's vision for the college was based on his visit to Oxford University and Cambridge University, and he wanted to establish an education system similar to the British mode.

GEOGRAPHY

Gibraltar

Context

- Gibraltar, with an area of just 6.8 sq km and a population of around 34,000 people, has been the subject of intense dispute between Spain and Britain for centuries.

Geography

- Gibraltar is a British Overseas Territory located at the southern tip of the Iberian Peninsula.
- It has an area of 6.7 km2 and is bordered to the north by Spain.
- Gibraltar has a Mediterranean climate (Köppen climate classification Csa), with mild, rainy winters and warm, dry summers.

Strait of Gibraltar

- The Straits of Gibraltar, is a narrow strait that connects the Atlantic Ocean to the Mediterranean Sea and separates the Iberian Peninsula in Europe from Morocco in Africa.

Banana Grit

Context

- Scientists at the CSIR in Kerala have come up with a new product, banana grit or granules, developed from raw Nendran bananas.

About

- Banana grit can be employed to cook a wide variety of dishes and form an essential ingredient of a healthy and well-balanced diet, including potassium.
- The banana grit has been especially valuable in improving gut health, which is considered paramount in maintaining the overall health and well-being of an individual.
- The powder can be mixed with milk or coconut milk and used as a health supplement.

Changalikodan Nendran Banana

- Famously known as Changalikodan is a banana variety originated and cultivated in Chengazhikodu village Kerala.
- Changalikodan, now are cultivated on the banks of the Bharathapuzha river.
- Changalikodan got Geographical indication registration from the Geographical Indications Registry, Chennai.

Magnetotellurics (MT)

Context

- The National Centre for Seismology (NCS) has started a geophysical survey over the Delhi region for accurate assessment of seismic hazards. This survey is called Magnetotellurics (MT).

Magnetotellurics (MT)

- Magnetotellurics (MT) is an electromagnetic geophysical method for inferring the earth's subsurface electrical conductivity from measurements of natural geomagnetic and geoelectric field variation at the Earth's surface.
- Investigation depth ranges from 300 m below ground by recording higher frequencies down to 10,000 m or deeper with long-period soundings.
- The method is now used in exploration surveys around the world.
- Commercial uses include hydrocarbon (oil and gas) exploration, geothermal exploration, carbon sequestration, mining exploration, as well as hydrocarbon and groundwater monitoring.

- Research applications include experimentation to further develop the MT technique, long-period deep crustal exploration, deep mantle probing, and earthquake precursor prediction research.

Thousand Islands

Context

- Recently, Sriwijaya Air Flight 182 went missing after taking off from Jakarta Soekarno–Hatta Airport on route to Pontianak Supadio Airport. The aircraft crashed near the Thousand Islands.

Thousand Islands

- The Thousand Islands constitute a North American archipelago of 1,864 islands.
- The archipelago is at the outlet of Lake Ontario at the head of the Saint Lawrence River.
- The region is bisected by the Canada–United States border.
- This region was designated a World Biosphere Reserve by UNESCO in 2002.

Chad

Context

- India has expressed serious concern over the security situation in the Sahel and Lake Chad region in West Africa, saying that terrorism, drug trafficking and organized crime have continued unabated in the area.

About

- Chad is a landlocked country in north-central Africa.
- It is bordered by Libya to the north, Sudan to the east, the Central African Republic to the south, Cameroon to the south-west, Nigeria to the southwest (at Lake Chad), and Niger to the west.
- Chad has several regions: a desert zone in the north, an arid Sahelian belt in the centre and a more fertile Sudanian Savanna zone in the south.
- Lake Chad, after which the country is named, is the largest wetland in Chad and the second-largest in Africa.
- The capital N'Djamena is the largest city. Chad's official languages are Arabic and French.

Semeru volcano

Context

- Recently, Indonesian Semeru volcano erupted.

About

- Semeru, is an active volcano in East Java, Indonesia.
- It is located in the subduction zone, where the Indo-Australia plate subducts under the Eurasia plate.
- It is the highest mountain on the island of Java.
- This stratovolcano is also known as Mahameru, meaning "The Great Mountain" in Sanskrit.

SHIELD VOLCANO
LAVA FLOWS
CINDER CONE
DEBRIS
COMPOSITE VOLCANO/
STRATOVOLCANO
LAHAR
LAVA FLOWS
LAND SLIDE
PYROCLASTIC FLOW
LAVA DOME
DOME
PYROCLASTIC FLOW
• Eruption Style: gentle, lots of magma, lava fountains and bombs.
• Magma: hot, low viscosity (runny), fast moving.
• Gas: low levels, can escape from magma.
• Shape: wide and low with gently sloping sides (from layers of lava flows cooling)
• Example: Mauna Loa, Hawaii.
• Eruption Style: mildly explosive, erupt lava from a breach in side or base of volcano, gas-filled lava cools to become cinders.
• Magma: low viscosity, hot, soft.
• Gas: expands and forms bubbles in lava, high levels.
• Shape: steep sides, small crater, surrounded by debris of small red or black basalt rocks with little holes (rock solidifies around bubbles)
• Example: Paricutin, Mexico.
• Eruption Style: explosive, violent, lava flows, lahar, pyroclastic flows, cinders and ash clouds.
• Magma: slightly cooler, thick and sticky, very viscous, foams and explodes violently.
• Gas: high levels, pressure from gas bubbles trying to escape.
• Shape: regular shape, steep sided cones, rough landscape, layers of lava, rock and ash make it tall.
• Example: Mt Fuji, Japan.
• Eruption Style: slow, can be violent, lava does not flow far.
• Magma: highly viscous.
• Gas: low levels.
• Shape: hardened, thick layers of rock.
• Example: Mt St Helens, USA

Jiadhal River

Context

- Thousands descended on the National Highway 15 to protest against the state government's alleged tardiness to construct embankments along the JiadhalRiver.

The River

- The Jiadhal River is a northern sub-tributary of the Brahmaputra River in Assam.
- The river originates from the hills of Arunachal Pradesh.
- The JiadhaliRiver flows through the Dhemaji district and takes the name of Kumotiya River from Gogamukh.
- The river finally joins SubansiriRiver, a major tributary of Brahmaputra River.
- Jiadhal River is known as 'Sorrow of Dhemaji' for the heavy damage caused by annual flood and erosion.

Ratle Hydro Electric (HE) Project

Context

- The Union Cabinet, has given its approval for the investment of Rs.5281.94 crore for 850 MW Ratle Hydro Electric (HE) Project.

About

- The Ratle Hydroelectric Plant is a run-of-the-river hydroelectric power station currently under construction on the Chenab River, in the Indian Union Territory of Jammu and Kashmir.
- It is being implemented by a new Joint Venture Company (JVC) to be incorporated between National Hydroelectric Power Corporation (NHPC) and Jammu & Kashmir State Power Development Corporation Ltd (JKSPDC) with equity contribution of 51% and 49% respectively.

Arctic Circle

Context

- Recently, India drafted a new Arctic policy that aims at expanding scientific research, sustainable tourism and exploration of mineral oil and gas in the Arctic region.

Arctic Circle

- The region north of this circle is known as the Arctic, and the zone just to the south is called the Northern Temperate Zone.
- Arctic Circle marks the northernmost point of the Earth.
- The position of the Arctic Circle is not fixed and currently runs 66°33′48.4″ north of the Equator.
- Its latitude depends on the Earth's axial tilt, which fluctuates within a margin of more than 2° over a 41,000-year period, due to tidal forces resulting from the orbit of the Moon.
- Consequently, the Arctic Circle is currently drifting northwards (shrinking) at a speed of about 15 m (49 ft) per year.
- The Arctic Circle is roughly 16,000 km (9,900 mi) long.
- The Arctic Circle passes through the Arctic Ocean, the Scandinavian Peninsula, North Asia, Northern America, and Greenland.

- The land within the Arctic Circle is divided among eight countries: Norway, Sweden, Finland, Russia, the United States (Alaska), Canada (Yukon, Northwest Territories, and Nunavut), Denmark (Greenland), and Iceland (where it passes through the small offshore island of Grímsey).

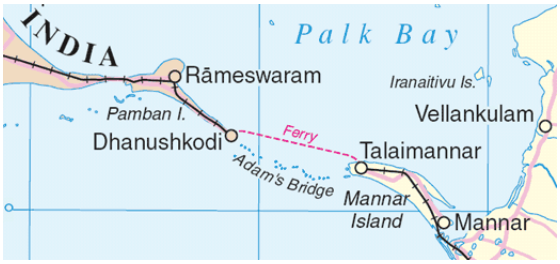
Ram Setu

Context

- The government has approved an underwater research project to ascertain the origins of the Ram Setu.

About

- Adam's Bridge, also known as Rama Setu, is a chain of limestone shoals, between Pamban Island, also known as Rameswaram Island, off the south-eastern coast of Tamil Nadu, and Mannar Island, off the north-western coast of Sri Lanka.
- Geological evidence suggests that this bridge is a former land connection between India and Sri Lanka.
- The bridge is 48 km long and separates the Gulf of Mannar (south-west) from the Palk Strait (northeast).



- Some of the regions are dry, and the sea in the area rarely exceeds 1 meter (3 ft.) in depth, thus hindering navigation.
- It was reportedly passable on foot until the 15th century when storms deepened the channel. Rameshwaram temple records say that Adam's Bridge was entirely above sea level until it broke in a cyclone in 1480.

Flash Drought

Context

- A team of Indian researchers found that a kind of rapidly developing drought manifests during the prominent rainy season. This is called Flash Drought.

About

- Flash drought, refers to a severe drought kind of situation that develops very rapidly.
- Unlike conventional droughts that develop over months, flash droughts intensify very quickly.
- This happens because rains stay away for 15-20 days at a stretch.
- Flash drought refers to relatively short periods of warm surface temperature and anomalously low and rapid decreasing soil moisture (SM).

- Based on the physical mechanisms associated with flash droughts, we classify these events into two categories: heat wave and precipitation (P) deficit flash droughts.
- When there is a monsoon break of 15-20 days, temperatures shoot up.
- This combination of monsoon breaks and increased temperatures depletes soil moisture very quickly, precipitating a very severe drought.

Impact

- Each year, 10-15 per cent of area under rice and maize crops in India is affected by flash droughts.
- It also revealed that flash droughts have had significant impact on crop production, particularly in three years — 1979, 1986 and 2001.
- Monsoon variability combined with increased warming may lead to more such events in India.
- This increasing frequency of flash droughts during the monsoon season in future can have implications for agriculture production and irrigation water demands in India.
- According to the scientists, the intensity of flash droughts has been increasing in some regions of the country, but not across it.
- For instance, in the Indo-Gangetic plains, where rainfall has been declining, there have been more instances.
- Two regions where flash droughts have been occurring mainly in non-monsoon periods are the peninsular region and the Himalayan region.

Pong Dam

Context

- 336 migratory birds were reported to be dead in Himachal's Pong Dam region.

About

- Maharana Pratap Sagar, also known as Pong Reservoir or Pong Dam Lake was created in 1975, by building the highest earth fill dam in India on the Beas River in the wetland zone of the Siwalik Hills of Himachal Pradesh.
- The reservoir is a wildlife sanctuary and one of the 27 international wetland sites declared in India by the Ramsar Convention.

Geohazards

Context

- The Ministry of Road Transport and Highways (MoRTH) recently entered into a pact with the Defence Research and Development Organisation (DRDO) to strengthen cooperation in the sustainable geo-hazard management.

What are Geohazards?

- Geohazards are geological and environmental conditions and involve long-term or short-term geological processes.
- Geohazards include earthquakes, volcanic activity, landslides, tsunamis, etc. and can range from local events such as a rock slide or coastal erosion to events that threaten humankind such as a supervolcano or meteorite impact.

Kochi-Managaluru Natural Gas Pipeline

Context

- Prime Minister Modi dedicated the Kochi - Mangaluru Natural Gas Pipeline to the nation.

About the Pipeline

- The 450 km long pipeline has been built by GAIL (India) Ltd.
- It has transportation capacity of 12 Million Metric Standard Cubic Metres per day, and will carry natural gas from the Liquefied Natural Gas (LNG) Regasification Terminal at Kochi (Kerala) to Mangaluru (Dakshina Kannada district, Karnataka)

Significance

- The pipeline will supply environment friendly and affordable fuel in the form of Piped Natural Gas (PNG) to households and Compressed Natural Gas (CNG) to the transportation sector.
- It will also supply Natural Gas to commercial and industrial units across the districts along the pipeline.
- Consumption of cleaner fuel will help in improving air quality by curbing air pollution.

POLITY

Horizontal and vertical quotas

Context

- The Supreme Court clarified the position of law on the interplay of vertical and horizontal reservations.

What are vertical and horizontal reservations?

- Reservation for Scheduled Castes, Scheduled Tribes, and Other Backward Classes is referred to as vertical reservation. It applies separately for each of the groups specified under the law.
- Horizontal reservation refers to the equal opportunity provided to other categories of beneficiaries such as women, veterans, the transgender community, and individuals with disabilities, cutting through the vertical categories.

How are the two categories of quotas applied together?

- The horizontal quota is applied separately to each vertical category, and not across the board.
- For example, if women have 50% horizontal quota, then half of the selected candidates will have to necessarily be women in each vertical quota category — i.e., half of all selected SC candidates will have to be women, half of the unreserved or general category will have to be women, and so on.
- The interlocking of the two types of reservation throws up a host of questions on how certain groups are to be identified.
- For example, would an SC woman be put in the category of women or SC? Since quotas are fixed in percentages, what percentage of quota would be attributed to each?

Broadcast Audience Research Council (BARC) India

Context

- WhatsApp transcripts reveal BARC chief links with Arnab Goswami.

Broadcast Audience Research Council (BARC)

- It is a joint-industry body founded by stakeholder bodies that represent Broadcasters (IBF), Advertisers (ISA) and Advertising & Media Agencies (AAAI).
- It is also the world's largest television measurement science industry-body.
- Built upon a robust and future-ready technology backbone, BARC India owns and manages a transparent, accurate, and inclusive TV audience measurement system.
- Apart from the currency products to the Indian TV industry, BARC India also provides a suite of Insight products designed for broadcasters, advertisers and agencies.
- The Big Data and Insights generated by BARC India powers efficient media spends and content decisions in a highly dynamic and growing television sector.
- Currently being scaled up to 180,000 individuals, BARC India is also the largest measurement company of its kind in the world.
- It uses Audio Watermarking technology to measure viewership of TV channels, and the system also allows measurement of time-shifted viewing and simulcasts.
- Guided by the recommendations of the TRAI (Telecom Regulatory Authority of India) and Ministry of Information & Broadcasting notifications of January 2014, BARC India brings together the three key stakeholders in television audience measurement - broadcasters, advertisers, and advertising and media agencies, via their apex bodies.

Telecom Regulatory Authority of India (TRAI)

- The Telecom Regulatory Authority of India (TRAI) is a **statutory body** set up by the Government of India under section 3 of the **Telecom Regulatory Authority of India Act, 1997.**
- It is the **regulator** of the telecommunications sector in India.
- It consists of a **Chairperson** and **not more than two full-time member**s and not more than two part-time members.
- The TRAI Act was amended by an ordinance, establishing a **Telecom Disputes Settlement and Appellate Tribunal (TDSAT)** to take over the adjudicatory and disputes functions from TRAI.
- TRAI's mission is to create and nurture conditions for the growth of telecommunications in India to enable the country to have a leading role in the emerging global information society.
- One of its main objectives is to provide a **fair and transparent environment that promotes a level playing field** and facilitates fair competition in the market.
- TRAI regularly issues orders and directions on various subjects such as tariffs, interconnections, quality of service, Direct To Home (DTH) services and mobile number portability.

Question Hour

Context

- Question Hour, which had been suspended by the government during the monsoon session, will resume when Parliament meets for the budget session from January 29.

About Question Hour

- It is during this one hour that **Members of Parliament ask questions of ministers** and hold them accountable for the functioning of their ministries.
- The questions that MPs ask are designed to elicit information and trigger suitable action by ministries.
- Over the last 70 years, MPs have successfully used this parliamentary device to shine a light on government functioning. Their questions have exposed financial irregularities and brought data and information regarding government functioning to the public domain.

Zero Hour

- While Question Hour is strictly regulated, Zero Hour is an **Indian parliamentary innovation**. The phrase does not find mention in the rules of procedure.
- The concept of Zero Hour started organically in the **first decade of Indian Parliament**, when MPs felt the need for raising important constituencies and national issues.
- During the initial days, Parliament used to break for lunch at 1 pm. Therefore, the opportunity for MPs to raise national issues without an advance notice became available at 12 pm and could last for an hour until the House adjourned for lunch.
- This led to the hour being popularly referred to as Zero Hour and the issues being raised during this time as Zero Hour submissions.

Regulation of Question Hour

- Parliament has comprehensive rules for dealing with every aspect of Question Hour.
- And the presiding officers of the two houses are the final authority with respect to the conduct of Question Hour.

Limit to the number of questions that can be asked

- Parliament rules limit the number of starred and unstarred questions an MP can ask in a day.
- The total number of questions asked by MPs in the starred and unstarred categories are then put in a random ballot.
- From the ballot in LokSabha, 20 starred questions are picked for answering during Question Hour and 230 are picked for written answers.

Law Commission

Context

- The Supreme Court asked the Home and Law Ministries to explain the nearly **three-year-long lapse in making appointments** to the Law Commission. The posts of Chairperson and Members have been vacant ever since the 21st Law Commission completed its tenure on August 31, 2018.

About Law Commission

- Law Commission of India is an **executive body** established by an order of the Government of India.
- Its major function is to **work for legal reform**. Its membership primarily comprises legal experts, who are entrusted a mandate by the Government.
- The commission is established for a **fixed tenure** and works as an advisory body to the Ministry of Law and Justice
- The **first Law Commission** was established during the British Raj era in **1834 by the Charter Act of 1833**. It was **presided by Lord Macaulay** After that, three more Commissions were established in pre-independent India.

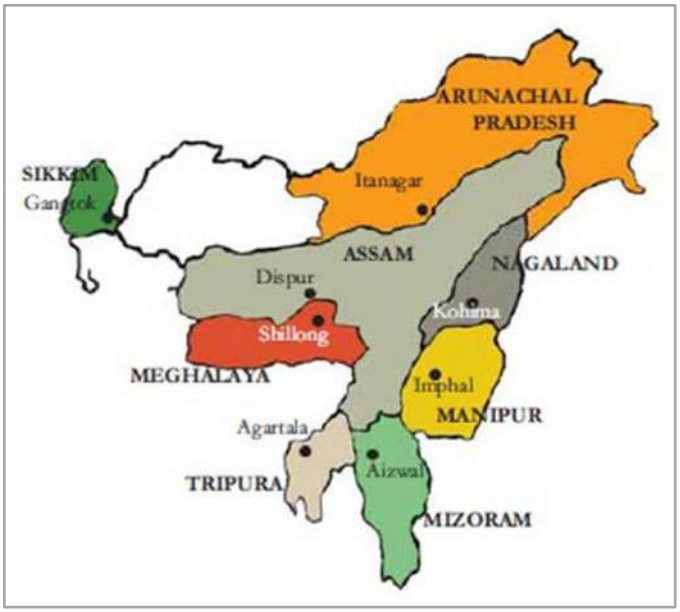
North Eastern Council

Context

- **U**nion Home Minister Amit Shah chaired the 69th plenary meeting of the North Eastern Council (NEC) in Shillong, Meghalaya.

About the council

- North Eastern Council (NEC) is a **statutory advisory body** constituted under the **NEC Act 1971** and came into being on 7 November 1972 at Shillong.
- The eight States of Northeast India viz. **Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim,** are members of the council, with their respective Chief Ministers and Governors representing them. Sikkim was added to the council in 2002.



- The headquarters of the council is situated in Shillong and functions under the **Ministry of Development of North Eastern Region (DONER)** of the Government of India.
- **Function:**
  - The Council was initially **set up as an advisory body** but now sanctioned as a **Regional planning body since 2002.**
  - They now **discuss any matter** in which the North Eastern States have a common interest and decide the action to be taken on any such matter. This was done so as to take care of the economic and social planning of these states, as well as to provide mediation in the event of inter-State disputes.

Corruption Perceptions Index (CPI) 2020

Context

- India slipped six places to 86th position among 180 countries in Transparency International's Corruption Perception Index (CPI) 2020.

Details

- India's score is below the average score of the Asia-Pacific region (31 countries) and global average.
- The list was topped by New Zealand and Denmark (88 each), followed by Switzerland, Finland, Sweden and Singapore (85 each).
- South Sudan and Somalia were at the bottom of the global ranking, with scores of 12 each.
- **Corruption and COVID-19:**
  - The CPI 2020 report noted the menace of corruption is highly pervasive in countries that are least equipped to tackle COVID-19 crisis.
  - COVID-19 is not just a health and economic crisis. It is a corruption crisis. And one that we are currently failing to manage.
  - The past year has tested governments like no other in memory, and those with higher levels of corruption have been less able to meet the challenge.

About the index

- The Corruption Perceptions Index (CPI) is an index published annually by **Berlin-based Transparency International since 1995** which ranks countries by their perceived levels of public sector corruption, as determined by **expert assessments and opinion surveys**.
- The CPI generally defines corruption as the **misuse of public power for private benefit**.
- The 2020 CPI, published in January of 2021, currently ranks 180 countries on a scale from **100 (very clean) to 0 (highly corrupt)**.

SOCIAL JUSTICE

HEALTH

Indian SARS-COV-2 Genomic Consortia (INSACOG)

Context

- The government has launched the Indian SARS-CoV-2 Genomic Consortia (INSACOG), comprising 10 labs namely DBT-NIBMG Kalyani, DBT-ILS Bhubaneswar, ICMR-NIV Pune, DBT-NCCS Pune, CSIR-CCMB Hyderabad, DBT-CDFD Hyderabad, DBT-InSTEM/ NCBS Bengaluru, NIMHANS Bengaluru, CSIR-IGIB Delhi, and NCDC Delhi.

Aim

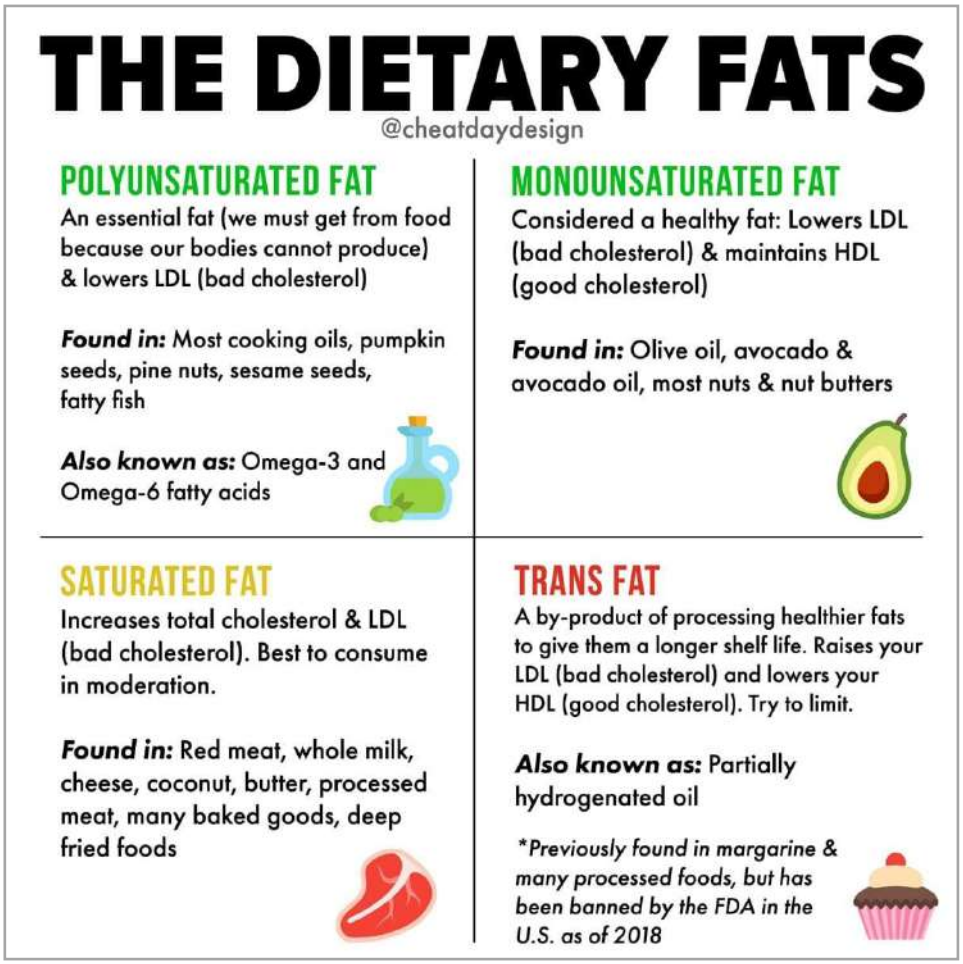
- To monitor the genomic variations in the SARS-CoV-2 on a regular basis through a multi-laboratory network.
- It will
  - **Assist in developing potential vaccines** in the future.
  - Ascertain the status of new variant of SARS-CoV-2 (SARS-CoV-2 VUI 202012/01) in the country
  - Establish a sentinel surveillance for early detection of genomic variants with public health implication

  - Determine the genomic variants in the unusual events/trends (super-spreader events, high mortality/morbidity trend areas etc.).
- INSACOG will have a high level Inter-Ministerial Steering Committee, which will provide guidance and oversight to the consortium specially for policy matters.
- It will have a Scientific Advisory Group for scientific and technical guidance.
- Coordinated by **Department of Biotechnology (DBT)** along with Ministry of Health and Family Welfare, Indian Council of Medical Research, and Council of Scientific and Industrial Research, the strategy and roadmap of the National SARS CoV2 Genome Sequencing Consortium (INSACOG) has been prepared.
- Knowledge generated though this vital research consortium will also assist in **developing diagnostics and potential therapeutics and vaccines in the future.**

FSSAI slashes limit for Trans Fat levels in foods

Context

- The Food Safety and Standards Authority of India (FSSAI) has capped the **amount of trans fatty acids (TFA)** in oils and fats to **3% for 2021 and 2% by 2022** from the current permissible limit of 5% through an amendment to the **Food Safety and Standards (Prohibition and Restriction on Sales) Regulations.**


THE DIETARY FATS
@cheatdaydesign
POLYUNSATURATED FAT
An essential fat (we must get from food because our bodies cannot produce) & lowers LDL (bad cholesterol)
Found in: Most cooking oils, pumpkin seeds, pine nuts, sesame seeds, fatty fish
Also known as: Omega-3 and Omega-6 fatty acids
MONOUNSATURATED FAT
Considered a healthy fat: Lowers LDL (bad cholesterol) & maintains HDL (good cholesterol)
Found in: Olive oil, avocado & avocado oil, most nuts & nut butters
SATURATED FAT
Increases total cholesterol & LDL (bad cholesterol). Best to consume in moderation.
Found in: Red meat, whole milk, cheese, coconut, butter, processed meat, many baked goods, deep fried foods
TRANS FAT
A by-product of processing healthier fats to give them a longer shelf life. Raises your LDL (bad cholesterol) and lowers your HDL (good cholesterol). Try to limit.
Also known as: Partially hydrogenated oil
*Previously found in margarine & many processed foods, but has been banned by the FDA in the U.S. as of 2018

Revised regulations

- It applies to edible refined oils, vanaspati (partially hydrogenated oils), margarine, bakery shortenings, and other mediums of cooking such as vegetable fat spreads and mixed fat spreads.
- While the regulation comes into effect immediately, industry players were made to take a pledge back in 2018 that they would comply with WHO's call for action to reduce TFA by 3% by 2021 allowing them three years to comply with the latest regulation.
- In 2011, India first passed a regulation that set a TFA limit of 10% in oils and fats, which was further reduced to 5% in 2015.

Trans fats

- Trans fats are associated with increased risk of heart attacks and death from coronary heart disease.
- As per the World Health Organisation (WHO), approximately 5.4 lakh deaths take place each year globally because of intake of industrially produced trans fatty acids.
- The WHO has also called for global elimination of trans fats by 2023.

Crimes against persons with disabilities

Context

- A group of over 90 disability rights organisations, activists and academics has written to Union Home Minister, urging that the National Crime Records Bureau (NCRB) **maintain data of the violent crimes committed against persons with disabilities.**
- The **NCRB does not maintain** disaggregated data on number of reported cases of sexual assaults on disabled girls/women such, as a separate category.
- The United Nations committee monitoring the implementation of the **U.N. Convention on Rights of PwD** had recommended to the government in 2019 to ensure that the NCRB collected **disaggregated data by sex, age, place of residence, relationship with perpetrator and disability in case of violence and exploitation of women and girls with disabilities**.
- The National Human Rights Commission too had recommended recently that the NCRB should maintain data on PwD.

Significance

- "The maintenance of such data will **enable policy-makers** in particular and other stakeholders **to formulate strategies and mechanisms to respond to their particular needs**, which can be disability specific, in facilitating access to the criminal justice system, among other things.
- 'Issue is urgent' as the **number of such cases were on the rise**, including during the COVID-19 pandemic.

The Convention on the Rights of Persons with Disabilities

- It is an international human rights treaty of the United Nations intended to **protect the rights and dignity of persons with disabilities.**
- Parties to the Convention are required to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities and ensure that **persons with disabilities enjoy full equality under the law.**
- **The Convention was the first U.N. human rights treaty of the twenty-first century.**
- There are eight guiding principles that underlie the Convention, delineated in Article 3:
  - Respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons
  - Non-discrimination
  - Full and effective participation and inclusion in society
  - Respect for difference and acceptance of persons with disabilities as part of human diversity and humanity
  - Equality of opportunity
  - Accessibility
  - Equality between men and women
  - Respect for the evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities

NCRB

- It is mandated to function as a **national repository of crime and criminal related data** in the country.
- NCRB is part of the Ministry of **Home Affairs (MHA),** Government of India.
- **Objectives:**
  - Create and maintain secure sharable National Databases on crimes and criminals for law enforcement agencies and promote their use for public service delivery.
  - Collect and process crime statistics at the national level and **clearing house of information on crime and criminals both at National and International levels**.
  - Lead and coordinate development of IT applications and create an enabling IT environment for Police organizations.
  - **National repository of fingerprints of all criminals**.
  - To evaluate, modernize and promote automation in State Crime Records Bureaux and State Finger Print Bureaux.
  - **Training and capacity building** in Police Forces in Information Technology and Finger Print Science.

Oxfam's 'Inequality Virus Report'

Context

- Indian billionaires increased their **wealth by 35%** during the lockdown, says Oxfam report
- Indian billionaires **increased their wealth by 35% during the lockdown to ₹ 3 trillion**, ranking India after U.S., China, Germany, Russia and France.
- The wealth of just the top 11 billionaires during the pandemic could easily sustain the MGNREGS or the Health Ministry for the next 10 years, stated the report.
- It underscored the deepening inequalities due to COVID-19 where the wealthiest escaped the worst impact of the pandemic while the **poor faced joblessness, starvation and death**.
- It **recommended reintroducing the wealth tax** and affecting a **one-time COVID-19 cess of 4%** on taxable income of **over Rs. 10 lakh** to help the economy recover from the lockdown.
- According to its estimate, **wealth tax on the nation's 954 richest families could raise the equivalent of 1% of the GDP**.
- The report also delved deeper into different forms of inequities, including educational, gender and health, which meant that facilities to wash hands and maintain distance, essential to prevent the spread of Corona virus, was impossible for a majority of the population.

Health

- According to the report, only 6% of the poorest 20% have access to non-shared sources of improved sanitation, compared to 93.4 % of the top 20 %.
- 59.6 % of India's population lived in a room or less, which meant that protocols necessary to prevent the spread of COVID-19 cannot be followed.
- While the government took steps to make COVID-19 services affordable by including them under Ayushman Bharat-PMJAY, the scheme **only covered BPL** (below poverty line) population leaving out the uninsured poor and the middle class.

Education

- Till October, **32 crores students were hit by closure of schools**, of whom 84 % resided in rural areas and 70 %attended government schools.
- Oxfam India's survey across five States said that **close to 40 % of teachers** in government schools feared that the **prolonged school closure might lead to a third of the students not returning once schools reopened.**
- It was estimated that **out of school rates would double** in a year.
- **Dalits, Adivasis and Muslims** were likely to see a **higher rate of dropout**.
- **Girls** were also most vulnerable as they were at **risk of early and forced marriage, violence and early pregnancies, it noted.**

Gender

- Unemployment of women rose by 15% from a pre-lockdown level of 18 %, which could result in a loss of India's GDP of about 8 % or ₹15 trillion.
- Women who were employed before the lockdown were also 23.5 percentage points less likely to be re-employed compared to men in the post lockdown phase.

COVID-19 performance index

Context

- India seeks a New Zealand, Vietnam top COVID-19 performance index, India at 86

Key highlights

- New Zealand and Vietnam were ranked the **best performing countries** in their response to the pandemic according to a COVID-19 "**performance index**" put together by the **Lowy Institute, an Australian think-tank,** which sought to assess the impact of geography, political systems and economic development in assessing outcomes.
- The index, which was based on **six different indicators** including
  - confirmed cases,

- confirmed deaths,
- cases per million people,
- deaths per million people,
- cases as a proportion of tests, and
- tests per thousand people.

- **Fewer reported cases and deaths**, both in aggregate and per capita terms, point towards a better response to the virus.
- More tests conducted on a per capita basis reveal a more accurate picture of the extent of the pandemic at the national level.
- Lower rates of positive tests, meanwhile, indicate greater degrees of control over the transmission of COVID-19.
- **India ranked 86 out of 98 countries,** while the United States placed 94 and Brazil at the bottom of the index.
- New Zealand and Vietnam led the list, followed by Taiwan, Thailand and Cyprus in the top five.
- **Sri Lanka** was the **best faring nation in South Asia**, ranking 10, while the Maldives was at 25, Pakistan at 69, Nepal at 70, and Bangladesh at 84.
- **China was not included** "due to a **lack of publicly available data** on testing".

Regional response:

- Assessing regional responses, it found that although the outbreak began in China, the Asia-Pacific region fared the best, while Europe and the U.S. were initially overwhelmed.
- **Europe**, "registered the **greatest improvement** over time of any region" before succumbing to a second wave which it attributed to more open borders.

Online Schooling

Context

- The Economic Survey 2020-21 states that online schooling took off in a big way during the COVID-19 pandemic.
- Quoting the **Annual Status of Education Report (ASER) 2020 Wave-1 (Rural),** the Survey states that the **percentage of enrolled children from government and private schools** owning a Smartphone **increased enormously from 36.5 per cent in 2018 to 61.8 percent in 2020 in rural India.**
- The Survey recommends that if utilized well, the resultant reduction in the digital divide between rural and urban, gender, age and income groups is likely to reduce inequalities in educational outcomes.
- To facilitate learning during COVID-19 pandemic, the Government is implementing several initiatives to make education accessible to children.
- An important initiative in this direction is **PM eVIDYA**, which is a comprehensive initiative to unify all efforts related to digital/online/on-air education to enable multi-mode and equitable access to education for students and teachers.
- Around 92 courses have started and 1.5 crores students are enrolled under **Swayam MOOCs** which are online courses relating to NIOS.
- **PRAGYATA guidelines on digital education** have been developed with a focus on online/blended/digital education for students who are presently at home due to closure of schools.
- The **MANODARPAN initiative** for psychological support has been included in Atma Nirbhar Bharat Abhiyan.
- The Survey states that **India has attained a literacy level of almost 96 per cent at the elementary school level.**
- As per National Sample Survey (NSS), the literacy rate of persons of age 7 years and above at the All India level stood at 77.7 per cent.
- **Female literacy remained below national average** among social groups of SC, ST, OBC, including religious groups of Hinduism and Islam.
- To provide quality education in schools and institutions of the government in affordable and competitive manner, the government announced the new National Education Policy, 2020 replacing the 34-year-old National Policy on Education, 1986.
- The new policy aims **to pave the way for transformational reforms in school and higher education systems in the country.**

- It aims to provide all students, irrespective of their place of residence, quality education system with special focus on the marginalised, disadvantaged and underrepresented groups.
- Some of the other programs and schemes for school education during 2020-21 include Samagra Shiksha, Enhancing Capacity Building of Teachers, Focus on Digital Education, strengthening school infrastructure, focus on girl education, focus on Inclusion, focus on sports and physical education and focus on regional balance.

Skill Development

- The Economic Survey 2020-21 states that only 2.4 per cent of the workforce of age 15-59 years has received formal vocational / technical training and another 8.9 per cent of the workforce received training through informal sources.
- The Government has taken several policy reforms for skill development recently.
- The **Unified Skill Regulator- National Council for Vocational Education and Training (NCVET)** was operationalized.
- **Pradhan Mantri Kaushal Vikas Yojana 3.0** was rolled out in 2020-21 with a tentative target to skill 8 lakh candidates including migrants.
- The grading of ITIs has been undertaken to improve their quality and transparency.

STARS Project

Context

- Agreement for the financial support of the implementation of **Strengthening Teaching-Learning and Results for States (STARS) project** of Ministry of Education was signed between **Department of Economic Affairs (DEA) and World Bank** along with Ministry of Education.
- The total project cost of STARS project is Rs 5718 crores with the financial support of World Bank amounting to approximately Rs. 3700 crores and rest coming as State share from the participating States, over a period of 5 years.
- STARS project would be implemented as a **new Centrally Sponsored Scheme** under **Department of School Education and Literacy (DoSEL), MOE.**
- The project covers **6 States viz Himachal Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Kerala and Odisha**.
- The identified States will be supported for various interventions for improving the quality of education.
- The Program envisions **improving the overall monitoring and measurement activitie**s in the Indian school education system through interventions in selected states.
- STARS will draw on existing structure under Samagra Shiksha with the DoSEL, MoE as the main implementing agency at the national level.
- At the State level, the project will be **implemented through the integrated State Implementation Society (SIS) for Samagra Shiksha.**
- The proposed World Bank support under STARS is primarily in the form of a **results-based financing instrument called Program for Results (PforR).**
- This will ensure major reforms at the State level through a set of disbursement-linked indicators (DLIs).
- A **State Incentive Grant (SIG)** will be used to encourage States to meet desired project outcomes.
- The SIG matrix has been aligned with the intermediate outcome indicators as per the requirement of PforR instrument.
- An **independent Verification agency (IVA)** will verify each result before disbursement of funds.

Significance

- STARS project will be **instrumental in the implementation of various recommendations of National Education Policy 2020** i.e. Strengthening Early Childhood Education and Foundational Learning, Improving Learning Assessment System, ICT-enabled approaches in education, Teachers Development and Vocational education etc.

INTERNATIONAL RELATIONS

OPEC+

Context

- To ensure the market is not flooded with oil while pandemic-related risks to demand remain high, OPEC kingpin Saudi Arabia decided to cut its own production by one million barrels per day in both months.

About OPEC+

- OPEC+ is a group of **24 oil-producing nations**, made up of the 14 members of the Organization of Petroleum Exporting Countries (OPEC), and **10 other non-OPEC members, including Russia.**
- The OPEC bloc is nominally led by Saudi Arabia, the group's largest oil producer, while Russia is the biggest player among the non-OPEC countries.
- The format was **born in 2017** with a deal to **coordinate oil production** among the countries in a bid to stabilize prices.
- Since then, the group has reached deals for members to voluntarily cut and ramp-up production in response to changes in global oil prices.
- **OPEC** accounts for around **one-third of the world's oil supply**, with the **non-OPEC** members bringing the total share of global oil covered by the deal to just **under half.**
- The **world's largest energy producer, the U.S., is not part of the deal**, nor is China or other leading Western producers such as the U.K., Canada and Norway.

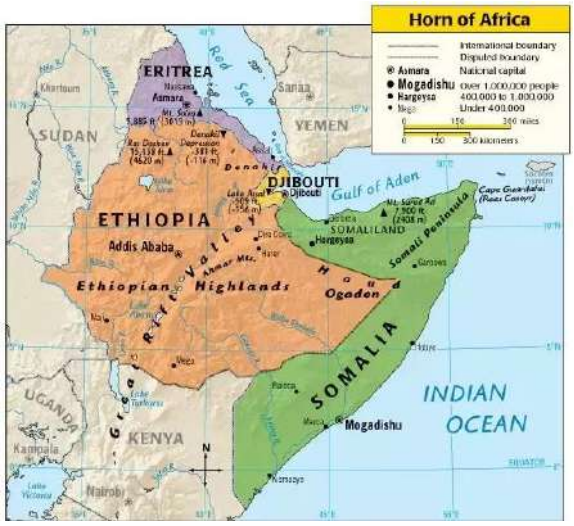
Grand Dam on Nile

Context

- Ethiopia, Sudan and Egypt agreed to resume negotiations to resolve their decade-long complex dispute over the Grand Renaissance Dam hydropower project in the Horn of Africa. The latest round of talks comes six weeks after Sudan had boycotted the ongoing negotiations.

The Nile River

- It is a major north-flowing river in northeastern Africa, and is the longest river in Africa and the disputed longest river in the world.
- Its drainage basin covers eleven countries: Tanzania, Uganda, Rwanda, Burundi, the Democratic Republic of the Congo, Kenya, Ethiopia, Eritrea, South Sudan, Republic of the Sudan, and Egypt.
- In particular, the Nile is the primary water source of Egypt and Sudan.
- The Nile has two major tributaries – the White Nile and



the Blue Nile.

Horn of Africa

- Horn of Africa is the easternmost extension of African land and includes the region that is home to the countries of Djibouti, Eritrea, Ethiopia, and Somalia, whose cultures have been linked throughout their long history.

International Solar Alliance

Context

- All member states of the UN can now join the International Solar Alliance.

Details

- All member states of the United Nations, including those lying beyond the tropics, can now join the International Solar Alliance (ISA) with an amendment to its framework agreement coming into effect recently.
- It is done in pursuance of achieving the universalization of the membership of the International Solar Alliance beyond the tropics.

About International Solar Alliance

- The International Solar Alliance was launched jointly by the **Indian** Prime Minister and the **French** President during the 2015 United Nations Climate Change Conference, or COP21, in Paris.
- It aims to contribute to the **implementation of the Paris Climate Agreement** through rapid and massive deployment of solar energy.
- As on January 15 this year, 89 countries have signed the framework agreement of the ISA and of these, 72 have deposited their instruments of ratification.
- The ISA aims to bring **together countries to provide a collective response** to the main common obstacles to the massive deployment of solar energy in terms of technology, finance and capacity.
- The objective of the ISA is to **mobilize member countries** and seek **commitments from international organizations and mobilize private sector,** to support rural and decentralized applications, access to affordable finance, island and village solar mini grids, rooftop installations, and solar e-mobility technologies.

Open Skies Treaty

Context

- The United States left the OST first after accusing Russia of violating the pact– allegations that Russia denied.

About Open Skies Treaty

- First proposed in **1955** by former US President Dwight Eisenhower as a means to de-escalate tensions **during the Cold War**.
- The landmark treaty was eventually **signed in 1992 between NATO member**s and **former Warsaw Pact** countries following the demise of the Soviet Union.
- It went into effect in 2002 and had 35 signatories, including key players US and Russia, along with **one non-ratifying member (Kyrgyzstan).**
- The OST aims at **building confidence among members** through mutual openness, thus reducing the chances of accidental war.
- Under the treaty, a **member state can "spy" on any part of the host nation**, with the latter's consent.
- A country can undertake **aerial imaging over the host state** after giving notice 72 hours before, and sharing its exact flight path 24 hours before.
- The information gathered, such as on **troop movements, military exercises and missile deployments,** has to be shared with all member
- Only approved imaging equipment is permitted on the **surveillance flights**, and officials from the host state can also stay on board throughout the planned journey.

Global Alliance for Vaccines and Immunization

Context

- Dr Harsh Vardhan, Union Minister of Health and Family Welfare, Government of India has been nominated by the Global Alliance for Vaccines and Immunisation (GAVI) as a member of the GAVI Board.

About GAVI

- GAVI, officially Gavi, the Vaccine Alliance is a **public–private global health partnership** with the goal of increasing access to immunization in poor countries.
- GAVI brings together **developing country and donor governments, the World Health Organization, UNICEF, the World Bank, the vaccine industry** in both industrialized and developing countries, research and technical agencies, civil society, the Bill & Melinda Gates Foundation and other private philanthropists. GAVI has observer status at the World Health Assembly.
- GAVI has been praised for being **innovative, effective, and less bureaucratic** than multilateral government institutions like the WHO.
- GAVI programmes can often produce quantified, politically appealing, easy-to-explain results within an election cycle, which is appealing to parties locked in an election cycle.
- It currently supports the **immunization** of almost half the world's children, giving it power to negotiate better prices for the world's poorest countries and remove the commercial risks that manufacturers faced in serving this market.

Gulf Cooperation Council

Context

- Gulf leaders have signed a **"solidarity and stability" agreement** towards ending the diplomatic rift with **Qatar at a summit in Saudi Arabia**.
- The announcement came at the **Gulf Arab leaders meeting in Saudi Arabia**, with the annual summit taking place amid a breakthrough in the dispute between a Saudi-led bloc and Qatar that started in June 2017.

About Gulf Cooperation Council

- The Cooperation Council for the Arab States of the Gulf known as the Gulf Cooperation Council, is a regional intergovernmental political and economic union consisting of all Arab states of the Persian Gulf - **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates - except Iraq.**
- The Charter of the GCC was signed on **25 May 1981**, formally establishing the institution.
- All current member states are monarchies, including **three constitutional monarchies** (Qatar, Kuwait, and Bahrain), **two absolute monarchies** (Saudi Arabia and Oman), and **one federal monarchy** (the United Arab Emirates, which is composed of seven member states, each of which is an absolute monarchy with its own emir).
- There have been discussions regarding the **future membership of Jordan, Morocco, and Yemen**.
- In order to **reduce their future dependence on oil**, the GCC states are pursuing unprecedented economic structural reform.

Chabahar Port

Context

- India has supplied a consignment of **two Mobile Harbour Cranes (MHC)** to Iran's Chabahar port, with a **total contract value of over USD 25 Million** under a contract agreement for supply of 6 MHC.

About Chabahar Port

- Chabahar Port is a seaport in Chabahar located in **southeastern Iran**, on the **Gulf of Oman**.
- It serves as **Iran's only oceanic port**, and consists of two separate ports named **Shahid Kalantari** and **Shahid Beheshti**, each of which has five berths.

India and Chabahar

- **India** and Iran first agreed to plans to further develop Shahid Beheshti port in **2003**, but did not do so on account of sanctions against Iran.
- In May 2016, **India and Iran signed a bilateral agreement** in which India would **refurbish one of the berths** at Shahid Beheshti port, and **reconstruct a 600 meter long container** handling facility at the port.

- The port is partly intended to provide an **alternative for trade between India and Afghanistan** as it is 800 kilometers closer to the border of Afghanistan than Pakistan's Karachi port.
- The port handled **2.1 million tons of cargo in 2015**, which was planned to be upgraded to handle 8.5 million tons by 2016, and to 86 million tons in the future.
- Following the **re-imposition of sanctions against Iran**, foreign companies became reluctant to participate in the port's expansion, and only 10% of the port's 8.5 million-ton total capacity was utilized in 2019.
- Sanctions also played a role in reducing India's involvement and investment in the US$1.6 billion Chabahar–Zahedan railway.

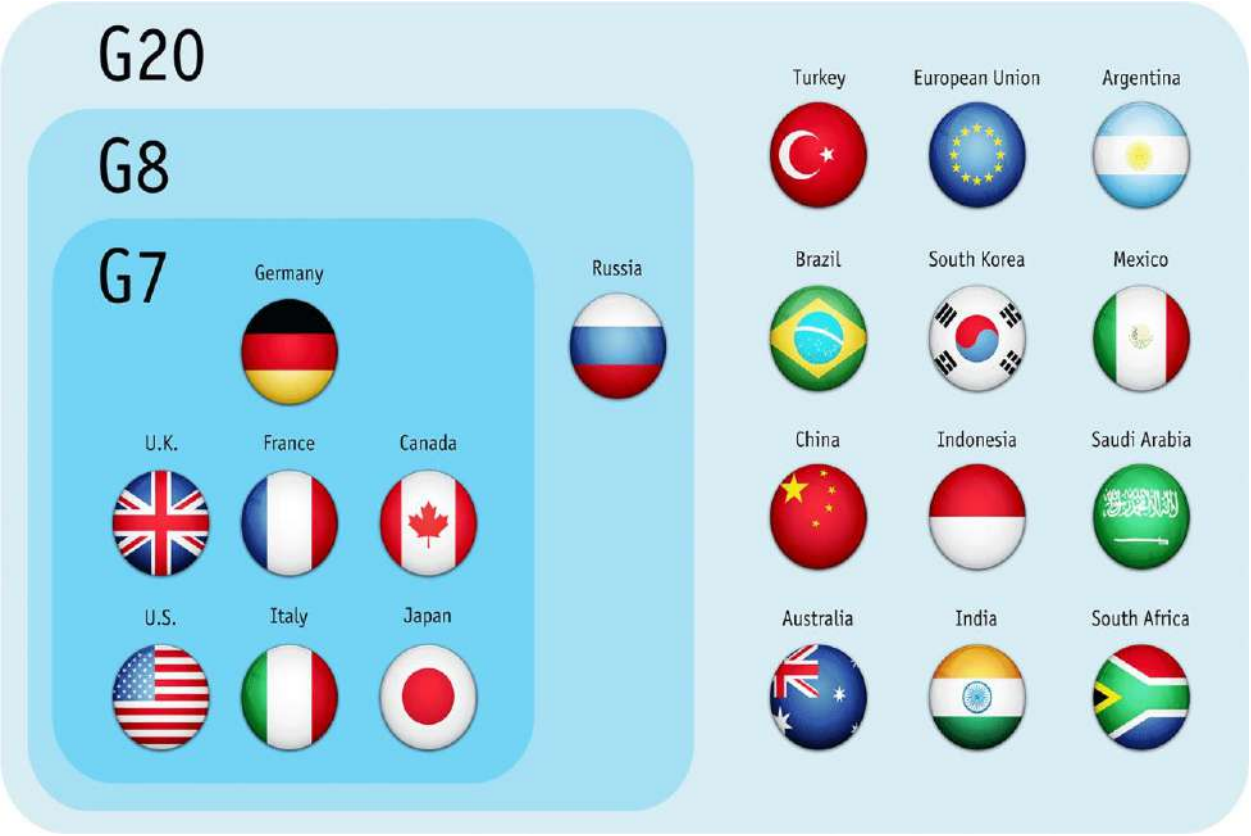
G7 Summit

Context

- The United Kingdom (UK) has **invited Prime Minister Narendra Modi** for the G7 Summit as a guest. The G7 Summit is scheduled to be held in **Cornwall** in June 2021.

About G7

- The Group of Seven (G7) is an intergovernmental organization consisting of Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.
- The heads of government of the member states, as well as the representatives of the European Union, meet at the annual G7 Summit.
- As of 2018, the G7 represents 58% of the global net wealth ($317 trillion), more than 46% of the global gross domestic product (GDP) based on nominal values, and more than 32% of the global GDP based on purchasing power parity.
- The seven countries involved are also the largest IMF-advanced economies in the world.



Future Investment Initiative

Context

- Dr. Harsh Vardhan, Union Minister for Health and Family Welfare addressed the 4th edition of the Future Investment Initiative Forum.

Details

- Dr Harsh Vardhan highlighted the five big trends which are emerging due to COVID-19 and influencing global business:
  - The impact of Technology and Innovation
  - Importance of Infrastructure for Global Growth
  - Changes coming in human resource and future of work
  - Compassion for environment
  - Business friendly governance with focus on whole of society and government approach

About Future Investment Initiative

- The Future Investment Initiative (FII) is an annual investment forum held in **Riyadh, Saudi Arabia**, to discuss trends in the **world economy and investment environment**.
- It is hosted by the **Public Investment Fund of Saudi Arabia (PIF)**.
- The first event was in October 2017 and featured the announcements of the **launch of NEOM**, a proposed $500bn independent economic zone in the northwest of Saudi Arabia.

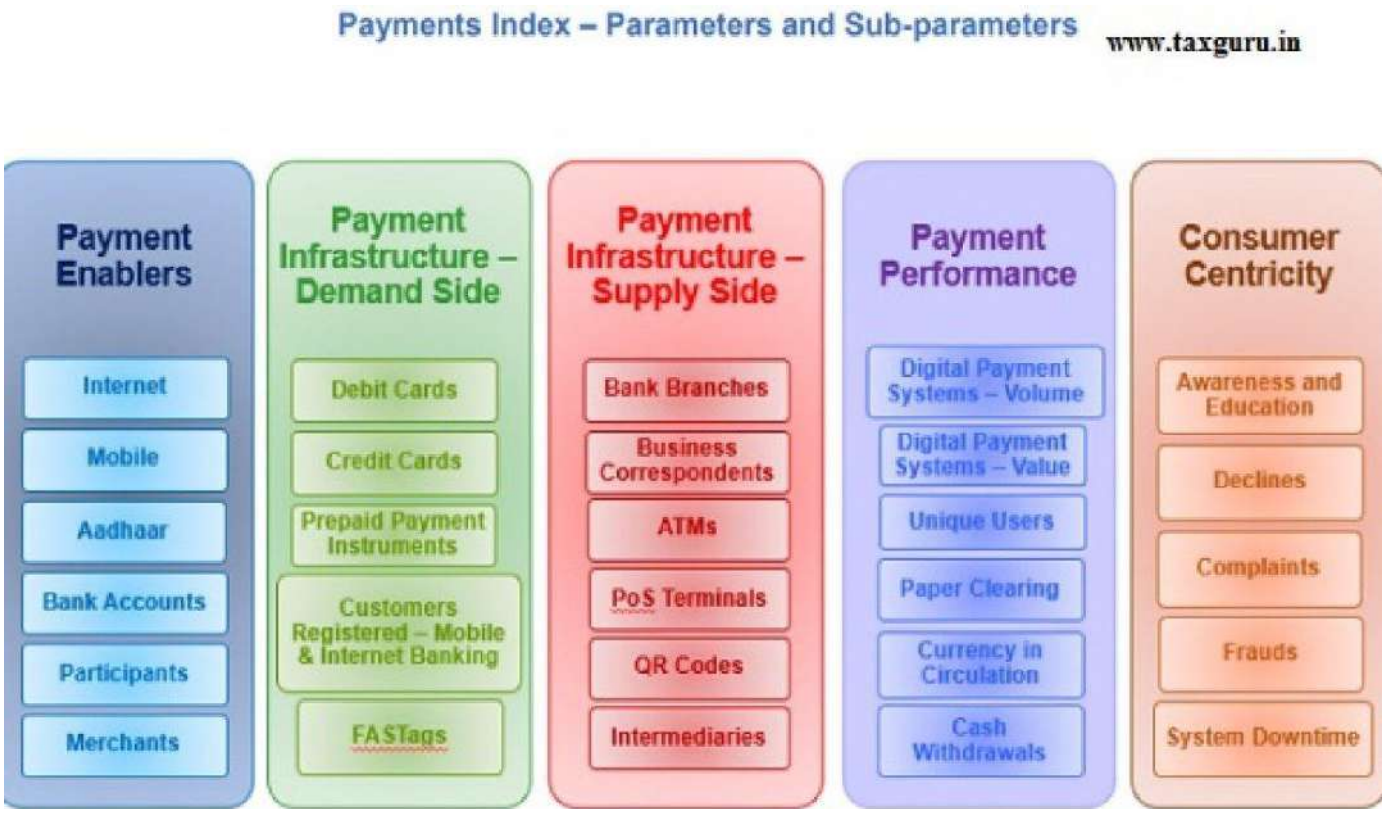
ECONOMY

Digital Payment Index

Context

- The Reserve Bank of India (RBI) has constructed a composite Digital Payments Index (DPI) to capture the extent of digitization of payments across the country.
- The RBI-DPI has been constructed with **March 2018 as the base period**.

- The DPI for March 2019 and March 2020 work out to 153.47 and 207.84 respectively, indicating appreciable growth.
- The RBI-DPI comprises five broad parameters that enable the measurement of deepening and expansion of digital payments in the country over different time periods.
- These parameters are including **Payment Enablers** (weight 25%), **Payment Infrastructure – Demand-side factors** and (10%), **Payment Infrastructure – Supply-side factors** (15%), **Payment Performance** (45%) and **Consumer Centricity** (5%),"



Bank Investment Company (BIC)

Context

- With the RBI raising concern over the issuance of zero coupon bonds for recapitalization of public sector banks (PSBs), the Finance Ministry is examining other avenues for affordable capital infusion including setting up of a Bank Investment Company (BIC).

Details

- Setting up a BIC as a holding company or a core investment company was **suggested by the PJ Nayak Committee** in its report on **'Governance of Boards of Banks in India'**.
- The report recommended **transferring shares of the government in the banks to the BIC** which would become the **parent holding company** of all these banks, as a result of this, all the PSBs would become 'limited' banks.
- BIC will be **autonomous** and it will have the **power to appoint the board of directors** and make other policy decisions about subsidiaries.
- The idea of BIC, which will serve as a **super holding company**, was also discussed at the first **Gyan Sangam bankers' retreat organized in 2014**.
- It would also look at **alternative ways of raising capital** such as the sale of non-voting shares in a bid to garner affordable capital.

Innovation Portal

Context

- It is an Innovation Portal developed by National Innovation Foundation (NIF).
- It will act as an excellent resource for **students, entrepreneurs, MSME's, Technology Business Incubators (TBI's)** and common people engaged in a variety of occupations
- The **National Innovation Portal (NIP)** is currently home to **about 1.15 lakh innovations** scouted from common people of the country, covering **Engineering, Agriculture, Veterinary and Human Health.**
- Growing importance of outstanding Traditional Knowledge, particularly herbal practices which stem from tribal areas, and is one of the key highlights of the Innovation Portal.
- Innovation Portal will **help institutionalize new ideas by common people** towards finding solutions to local problems.
- Innovation Portal will create an ecosystem where the Institutions will stand behind all those who can convert their **ideas and innovations into entrepreneurship**.

National Innovation Foundation (NIF)

- India is an autonomous body of the Department of Science and Technology (DST), Government of India.
- It is India's national initiative to strengthen the grassroots technological innovations and outstanding traditional knowledge.
- NIF helps grassroots innovators and outstanding traditional knowledge holders get due recognition, respect and reward for their innovations.

SAATHEE Portal

Context

- BEE launched the SAATHEE (State-wise Actions on Annual Targets and Headways on Energy Efficiency) portal.

About the Portal

- It is a portal for the **State Designated Agency (SDA)** for state level activities in the energy conservation sphere.
- BEE developed the **Management Information System (MIS) portal**, with the main objectives of the web-portal being:
  - It will be useful in capturing the **physical and financial status/ progress of Energy Efficiency activities** being implemented by States/ UTs across the country.
  - It will facilitate **real-time monitoring of the progress** of implementation of all the Energy Efficiency and Energy Conservation endeavors.
  - It will also help in **decision making, coordination, control, analysis,** and implementation and enforcement of the compliance process for various energy consumers at the pan India level.
  - This MIS portal would present the **physical and financial progress of SDAs** in the form of multiple reports and provide tracking of progress made by the SDAs

About BEE

- The Bureau of Energy Efficiency is an agency under the **Ministry of Power** under the provisions of the nation's **2001 Energy Conservation Act**.
- The agency's function is to develop programs which will **increase the conservation and efficient use of energy in India**.

Single-window clearance for coal

Context

- The Union government has announced a new online single window clearance portal for the coal sector to **speed up the operationalization of coal mines**.

Details

- A single window clearance portal is aimed at allowing **successful bidders for coal blocks to be able to obtain all required clearances**, including environmental and forest clearances, from a single portal with progress monitoring, instead of having to go to multiple authorities.

- The portal should allow successful bidders to **operationalize coal mines more quickly**.
- Presently, about **19 major approvals**, or clearances are required before starting the coal mine in the country.
- **Parivesh mechanism for forest and environment** related clearances would likely be merged into the single window clearance mechanism.

EBITDA

Context

- BSNL & MTNL turns EBITDA positive within 1 year of approval of revival plan by Union Cabinet. Both organizations expect to reduce their losses by 50% when compared to 2019-20.

About EBITDA

- EBITDA, or earnings before interest, taxes, depreciation, and amortization, is a measure of a company's overall financial performance and is used as an alternative to net income in some circumstances.
- EBITDA is essentially net income (or earnings) with interest, taxes, depreciation, and amortization added back.
- EBITDA can be used to analyze and compare profitability among companies and industries, as it eliminates the effects of financing and capital expenditures.
- EBITDA is often used in valuation ratios and can be compared to enterprise value and revenue.
- *EBITDA*=Net Income + Interest + Taxes + D + A where: D=Depreciation A=Amortization.

Natural Capital Accounting and Valuation of the Ecosystem Services (NCAVES) India Forum-2021

Context

- NCAVES India Forum 2021 is being organized by the Ministry of Statistics and Programme Implementation (MoSPI).

About NCAVES Project

- The NCAVES Project, funded by EU, has been jointly implemented by the
  - United Nations Statistics Division (**UNSD**),
  - the United Nations Environment Programme (**UNEP**) and
  - the Secretariat of the Convention of Biological Diversity (**CBD**).
- India is one of the five countries taking part in this project - the other countries being **Brazil, China, South Africa and Mexico**.
- In India, the NCAVES project is being implemented by the MoSPI in close collaboration with the **Ministry of Environment, Forest and Climate Change** (MoEF&CC) and the **National Remote Sensing Centre** (NRSC).
- Several of these accounts are closely related to the social and economic attributes, making them a useful tool for the Policy.
- Under the NCAVES project, the **India-EVL Tool** is developed, which is essentially a **look-up tool giving a snapshot of the values of various ecosystem services** in the different States of the country, based on about 80 studies conducted across the country.
- An additional benefit of this tool is that it provides a **critical view on the literature that is available** and the **applicability of estimates spatially across India** according to bio-geographical areas.

Railways business development portal

Context

- Railway Minister launched the freight business development portal.

About the portal

- It is designed to **replace physical processes with online ones** to minimize the need of human-to-human interaction.
- For customers new to rail, the business development portal guides them to **search the most suitable terminal with detail** of various terminal facilities and logistics services available, assisting them to choose the right wagon, presenting the expected charges and estimated time for their planned freight transportation.

- Customers also get to know about **discount schemes, diversion, rebooking, and demurrage** and wharf age waivers, stacking permissions.
- They can also get to know about **rake allotments and pendency or maturity** of indents at various freight terminals.
- The website also has **specific pages for commodities** such as coal, minerals, food grain, flour and pulses, cement and clinker, chemical manure, iron and steel, petroleum products, container services and automobile, according to the official release.

India Innovation Index

Context

- NITI Aayog along with the Institute for Competitiveness Releases Second Edition of India Innovation Index. The report examines the innovation capabilities and performance of the states and union territories.

Findings of the report

- Overall **Delhi Tops the List**, Chandigarh Major Gainer, Karnataka and Himachal Pradesh Lead in Their Respective Categories.
- In the second edition the index found that the **level of competitiveness** among the states and union territories was **high**.
- In the '**Major States'** category, Karnataka continued to occupy the top position, while Maharashtra moved past Tamil Nadu to reach the second place.
    - Karnataka's rank is attributable to its substantive number of venture capital deals, registered geographical indicators and information and communications technology exports.
    - Karnataka's high Foreign Direct Investment (FDI) inflow has also enhanced the innovation capabilities of the state.
- **Four southern states**—Karnataka, Tamil Nadu, Telangana and Kerala—occupied the top five spots under the 'Major States' category this year.
- Under the '**North-Eastern/Hill States' category, Himachal Pradesh** moved up from the second position to emerge as the top ranker this year, while 2019's top performer Sikkim, slipped down to the fourth position.

Parameters of the index

- The innovation inputs were measured through five enabler parameters, and the output through two performance parameters.
- **'Human Capital', 'Investment', 'Knowledge Workers', 'Business Environment', 'Safety and Legal Environment'** were identified as enabler parameters.
- **'Knowledge Output'** and **'Knowledge Diffusion'** were chosen as the performance parameters.

Section 32 A of the Insolvency and Bankruptcy Code (IBC)

Context

- The Supreme Court in its judgment upholds the validity of Section 32 A of the Insolvency and Bankruptcy Code (IBC).

Supreme Court Judgment

- The Supreme Court held that the successful bidders for a corporate debtor under the Insolvency and Bankruptcy Code (IBC) would be **immune from any investigations being conducted either by any investigating agencies** such as the Enforcement Directorate (ED) or other statutory bodies such as Securities and Exchange Board of India (SEBI).
- In its judgment, the apex court, while upholding the validity of Section 32 A of IBC, said it was **important for the IBC to attract bidders who would offer reasonable and fair value for the corporate debtor** to ensure the timely completion of corporate insolvency resolution process (CIRP).
- The extinguishment of the criminal liability of the corporate debtor is apparently important to the new management to make a clean break with the past and start on a clean slate.

Legal Entity Identifier (LEI) system

Context

- The **Reserve Bank of India (RBI)** has decided to introduce the Legal Entity Identifier (LEI) system for **all payment transactions of value □50 crore** and above undertaken by entities using the Reserve Bank-run Centralised Payment Systems with effect from April 1.

About Legal Entity Identifier (LEI) system

- LEI is a 20-digit number used to uniquely identify parties to financial transactions worldwide.
- It was conceived as a key measure to improve the quality and accuracy of financial data systems for better risk management post the global financial crisis.
- RBI has asked member banks participating in Real Time Gross Settlement (RTGS) and National Electronic Funds Transfer (NEFT) to advise entities who undertake large value transactions (□50 crore and above) to obtain LEI in time.
- Member banks should include remitter and beneficiary LEI information in RTGS and NEFT payment messages.
- Entities can obtain LEI from any of the Local Operating Units (LOUs) accredited by the Global Legal Entity Identifier Foundation (GLEIF), the body tasked to support the implementation and use of LEI.
- In India, LEI can be obtained from Legal Entity Identifier India Ltd. (LEIL), which is also recognised as an issuer of LEI by the Reserve Bank under the Payment and Settlement Systems Act, 2007.

Payment infra development fund Scheme

Context

- The **Reserve Bank of India (RBI)** announced the operationalization of the **payment infrastructure development fund (PIDF) scheme**, which is intended to subsidies deployment of payment acceptance infrastructure in **tier-3 to tier-6 centers**, with a special focus on the north-eastern states of the country.

Details

- The fund will be operational for **three years** effective from **January 1, 2021** and may be extended for two more years.
- The PIDF presently has a **corpus of Rs 345 crore**, with Rs 250 crore contributed by the RBI and Rs 95 crore by the major authorised card networks in the country.
- The authorised card networks shall contribute in all**Rs 100 crore**.
- The **card issuing banks shall also contribute** to the corpus based on the card issuance volume — covering both debit and credit cards — at the rate of `1 and `3 per debit and credit card issued by them, respectively.
- PIDF shall also receive **annual contributions from card networks and card issuing banks**.
- As the cost structure of acceptance devices vary, subsidy amounts shall accordingly differ by the type of payment acceptance device deployed.

International Financial Services Centres Authority (IFSCA)

Context

- The International Financial Services Centres Authority (IFSCA) has become an Associate Member of the International Organization of Securities Commissions (IOSCO).
- The IOSCO's membership is a significant milestone in **connecting IFSCA with the regulators of securities markets globally** and would contribute immensely towards the development and regulation of the financial products, financial services and financial institutions at the Gujarat International Finance Tec-City International Financial Services Centre.

About IOSCO

- The IOSCO is the international organization that brings together the **world's securities regulators**, covering more than **95% of the world's securities markets**, and is the global standard setter for the securities sector.
- IOSCO works closely with the **G20 and the Financial Stability Board (FSB)** in setting up the standards for strengthening the securities markets.

- The IOSCO Objectives and Principles of Securities Regulation have been **endorsed by FSB as one of the key standards for sound financial systems**.
- The membership of IOSCO would provide IFSCA the platform to **exchange information at the global level and regional level** on areas of common interests.
- Further, the IOSCO platform would **enable IFSCA to learn from the experiences** and best practices of the regulators of other well established financial centres.

About IFSCA

- The International Financial Services Centres Authority (IFSCA) was established on April 27, 2020 under the **International Financial Services Centres Authority Act, 2019**. It is headquartered at **GIFT City, Gandhinagar in Gujarat.**
- The IFSCA is a unified authority for the **development and regulation of financial products,financial services and financial institutions** in the International Financial Services Centre (IFSC) in India.

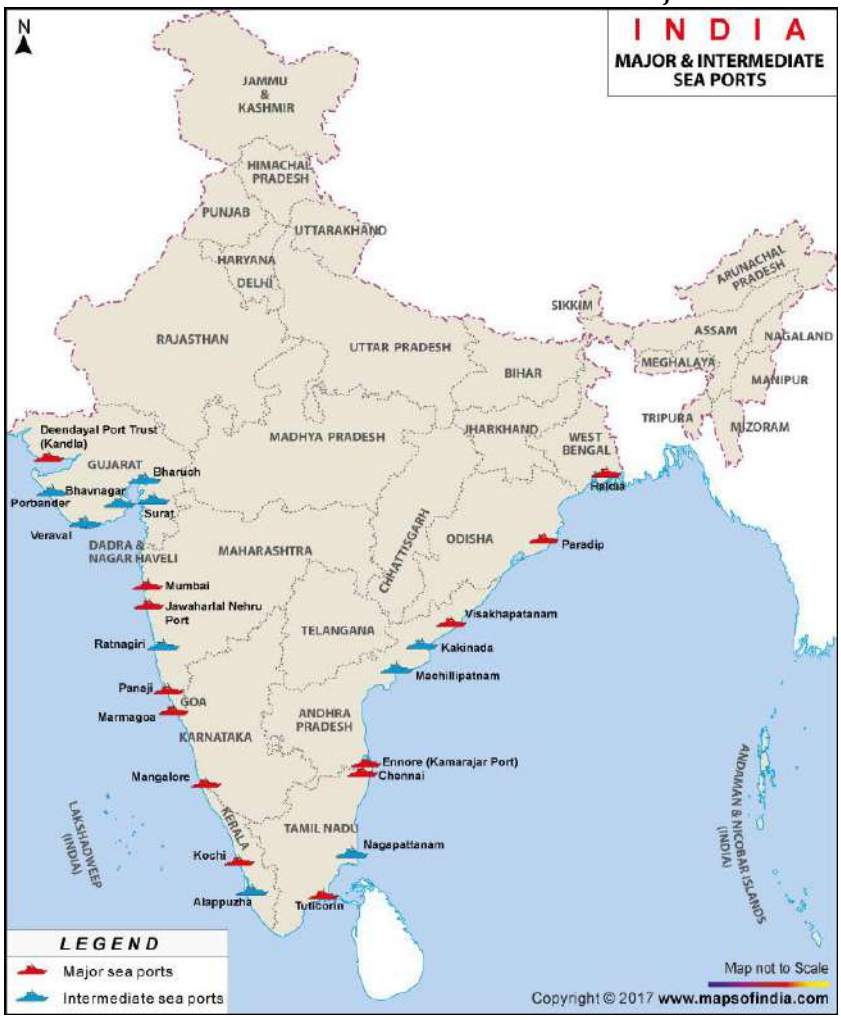
Paradip Port

Context

- Cabinet approves **Deepening and Optimization** of Inner Harbour Facilities including Development of Western Dock on **Build, Operate and Transfer (BOT) basis** under **Public-Private Partnership PPP** mode to handle cape size vessels at Paradip Port
- The project shall also facilitate:
  - de-congestion of the Port
  - reduce Sea freight making coal imports cheaper, and
  - boost the industrial economy in the hinterland of the port leading to creation of job opportunities.

About Paradip Port

- Paradip Port Trust (PPT), a Major Port under Government of India and administered under the **Major Port Trusts Act, 1963**, was commissioned in 1966 as a **mono commodity port for export of iron ore.**
- Port has transformed itself to handle a variety of Exim cargoes which include **iron ore, chrome ore, aluminium ingots, coal, POL, fertilizer raw materials, limestone, clinker, finished steel products, containers**, etc.
- Paradip Port is a **natural, deep-water port** on the East coast of India in Jagatsinghpur district of Odisha.
- It is situated at the confluence of the **Mahanadi River and the Bay of Bengal**.
- It is situated 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam.
- The port is administered by the Paradip Port Trust (PPT), an autonomous corporation wholly owned by the Government of India.



New Iron Ore Policy

Context

- The Ministry of Railways rolled out a new iron ore policy governing allocation of rakes and transportation of iron ore.

Details

- The Policy aims to attune it to the **present day needs of customers** and to meet the complete **requirement of transportation** of iron ore customers.
- It will provide total logistics support to the steel industry to meet the competitive challenges. The new policy has been named as **Iron-ore Policy 2021** and will come into effect from **10th February this year.**
- Iron-ore is the s**econd most important stream of traffic of Railways** and along with steel accounts for nearly **17 per cent of the total** one thousand 210 million tonne freight loading in 2019-20.
- The new policy is expected to have a positive impact on the steel industry, provide powerful impetus to the core sector of the economy and boost the country's economic growth.

Prarambh: Startup India International Summit

Context

- The two day 'Prarambh', **Startup India International Summit** began in New Delhi today, with members of **BIMSTEC** (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) countries participating in the inaugural event.

Details

- The Summit is being organized by the Department for Promotion of Industry and Internal Trade, M/o Commerce & Industry.
- The Summit is a demonstration of neighborhood first policy which will boost partnership among the member countries.
- The partnership among the BIMSTEC countries in the sector will take startups to the forefront of new India, new world, and new neighborhood in the new normal.
- India has over 41,000 startups registered with the Government but there are many more who are working at the grassroots level and doing a good job.

- A startup defined as an entity that is **headquartered in India**, which was opened **less than 10 years ago**, and has an **annual turnover less than Rs. 100 crore** (US$14 million).
- The government has launched the **I-MADE program**, to help Indian entrepreneurs build **10 lakh (1 million) mobile app start-ups**, and the **MUDRA Bank's scheme** (Pradhan Mantri Mudra Yojana), an initiative which aims to provide micro-finance, **low-interest rate loans** to entrepreneurs from low socioeconomic backgrounds.
- Initial capital of **Rs. 20,000 crore** (equivalent to Rs. 230 billion or US$3.2 billion in 2019) has been allocated for Startup India.

New Portal For Freight Transportation

Context

- In a bid to provide a one-stop cargo solution for the transportation of goods, Indian Railways has launched a freight business development portal.

Details

- According to a statement released by the Railway Ministry, the dedicated freight portal will ensure that **all operations stay customer-centric**, **reduce the costs for logistics providers**, provide the **online tracking facility for suppliers** and also **simplify the process of goods transportation**.
- The portal has been designed to **replace the physical process with an online way**, in order to minimize human interaction.

- It offers customer-centric incentive schemes to facilitate **logistic requirements, scheduled timetables movement** of cargo over Indian Railways network, live tracking, and monitoring of parcels.
- It also offers **investment opportunities for wagons**.

TRIFOOD Parks

Context

- A Memorandum of Understanding (MoU) was exchanged between the two organisations on January 3, 2021 to work together for setting up of **TRIFOOD Parks** in **5 districts in Madhya Pradesh**.

Details

- TRIFED has decided to explore convergence and build a partnership with **Akhil Bhartiya Vanvasi Kalyan Kendra**, a pioneering organization that has been working for the welfare of tribals in Madhya Pradesh, Chhattisgarh and Jharkhand since 1952.
- The two organizations will work together by undertaking various initiatives all aimed at **improving the livelihood of tribal people** and **implementation of the Van Dhan Yojana** through the mobilization of Self Help Groups (SHGs) / Van DhanVikas Kendra (VDVKs) / VPCs / TRIFOOD Parks.
- With TRIFED as the mentoring organization, it has been agreed that Vanvasi Kalyan Ashram **would form new Van Dhan Kendras** in tribal areas.

Vanavasi Kalyan Ashram

- It is an Indian social welfare organization based in **Jashpur, in the Chhattisgarh** state of India.
- It focuses on the **welfare activities of Scheduled Tribes** in remote areas of India.
- These branches focus on **agriculture, healthcare, child education, and sports**.
- It also works to create **cultural awareness** among janjatis thereby facilitating the **idea of preservation of their tradition and customs** followed in different groups.
- The organization is a constituent of the Sangh Parivar, the family of organizations affiliated with **Rashtriya Swayamsevak Sangh** (RSS).

Van Dhan Scheme:

- The Van Dhan Scheme is an initiative of the **Ministry of Tribal Affairs and TRIFED**.
- It was launched on **14th April, 2018** and seeks to **improve tribal incomes** through value addition of tribal products.
- The scheme will be implemented through the **Ministry of Tribal Affairs as Nodal Department at the Central Level** and **TRIFED as Nodal Agency at the National Level**.
- At State level, the **State Nodal Agency for MFPs and the District collectors** are envisaged to play a pivotal role in scheme implementation at grassroot level.
- Locally the Kendras are proposed to be managed by a **Managing Committee (an SHG) consisting of representatives of Van Dhan SHGs** in the cluster.

Minor Forest Produce (MFP)

- It is a major source of livelihood for tribals living in forest areas.
- The importance of MFPs for this section of the society can be gauged from the fact that around **100 million forest dwellers depend on MFPs** for food, shelter, medicines and cash income.
- It provides them **critical subsistence during the lean seasons**, particularly for primitive tribal groups such as hunter gatherers, and the landless.
- Tribals derive **20-40% of their annual income from MFP** on which they spend a major portion of their time.

Sagarmala Seaplane Services (SSPS)

Context

- **Ministry of Ports, Shipping and Waterways** is initiating the process of commencing operations of the **Seaplane services**, on the select routes, under a **Special Purpose Vehicle (SPV)** framework through **prospective airline operators.**

Details

- The project execution and implementation would be through **Sagarmala Development Company Ltd (SDCL)**, which is under the administrative control of the Ministry.
- Several destinations are envisaged for seaplane operations.
- The seaplanes services will be a game-changer providing a **supplementary means of faster and comfortable transportation** across the nation.
- Apart from providing air connectivity to various **remote religious/tourist places**, it will boost tourism for **domestic and international holidaymakers**.
- It will **save travel time and stimulate localized short distance** travelling especially in the hilly regions or across the rivers/lakes etc.

Sagarmala Project:

- The Sagarmala Programme is an initiative by the government of India to **enhance the performance of the country's logistics sector.**
- The programme envisages **unlocking the potential of waterways and the coastline to minimize infrastructural investments** required to meet these targets.
- It entails investing Rs. 8.5 trillion (2018) to set **up new mega ports, modernizing India's existing ports, developing of 14 Coastal Economic Zones (CEZs) and Coastal Economic Units**, enhancing port connectivity via **road, rail, multi-modal logistics parks, pipelines & waterways and promoting coastal community development.**

India's first Lithium refinery

Context

- India's first Lithium refinery which will **process Lithium ore to produce battery-grade material** will be set up in **Gujarat**.

Details

- **Manikaran Power Limited**, one of the country's largest power trading and renewable energy companies will be investing over **Rs 1,000 crore to set up this refinery**.
- Last year, Manikaran Power had collaborated with Australian firm Neometals to tap the **Mount Marion Lithium mine in Western Australia.**
- The proposed project is expected to help Gujarat secure the raw material supply for **domestic manufacturing of Lithium batteries** as it looks to promote **electric vehicles**.
- India currently imports most of the Lithium needed. According to data tabled in the Parliament in February 2020, the **import of Lithium-ion batteries quadrupled to 712 million batteries in 2018** from 175 million in 2016.
- **China, Hong Kong and Vietnam** were the leading sources of imports.

Central Sector Scheme for Industrial Development of Jammu & Kashmir

Context

- The Cabinet Committee on Economic Affairs approved the proposal of the Department for Promotion of Industry and Internal Trade for the Central Sector Scheme for Industrial Development of Jammu & Kashmir. The scheme is approved with a **total outlay of Rs. 28,400 crore upto the year 2037**.

Details

- Government of India has formulated **New Industrial Development Scheme** for Jammu & Kashmir (J&K IDS, 2021) as **Central Sector Scheme** for the development of Industries in the UT of Jammu & Kashmir.
- The main purpose of the scheme is to **generate employment** which directly leads to the socio economic development of the area.
- The following incentives would be available under the scheme:
    - **Capital Investment Incentive** at the rate of 30% in Zone A and 50% in Zone B on investment made in Plant & Machinery (in manufacturing) or construction of buildings and other durable physical assets (in service sector) is available.
    - **Capital Interest subvention:** At the annual rate of 6% for maximum 7 years on loan amount up to Rs. 500 crore for investment in plant and machinery (in manufacturing) or construction of building and all other durable physical assets (in service sector).
    - **GST Linked Incentive:** 300% of the eligible value of actual investment made in plant and machinery (in manufacturing) or construction in building and all other durable physical assets(in service sector) for 10 years.
    - **Working Capital Interest Incentive:** All existing units at the annual rate of 5% for maximum 5 years. Maximum limit of incentive is Rs 1 crore.

SCIENCE & TECHNOLOGY

National Internet Exchange of India

Context

- Recently, the National Internet Exchange of India, has announced that it will offer a free Internationalized Domain Name, IDN in any of the preferred 22 official Indian language along with every IN domain booked by the registrant.

National Internet Exchange of India

- The National Internet Exchange of India (NIXI) is a non-profit Company incorporated under Section 25 of the India Companies Act, 1956
- It has an objective of facilitating improved internet services in the country.

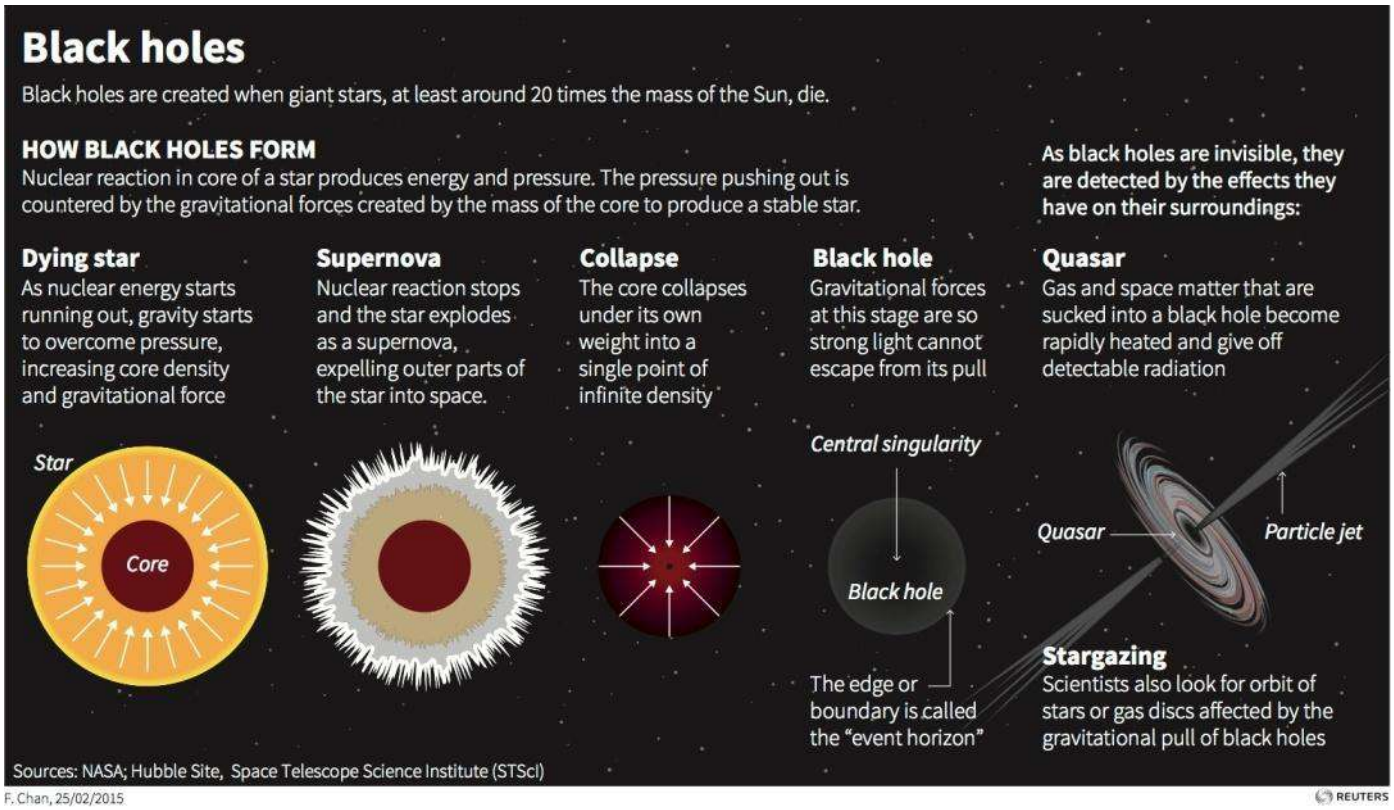
- Its primary purpose is to facilitate exchange of domestic Internet traffic between the peering ISP, Content players and any other organizations with their own AS number.
- This enables more efficient use of international bandwidth, saving foreign exchange and also improves the Quality of
- Services (QoS) for Internet users by avoiding multiple international hops and thus reducing latency.

An Autonomous System (AS) is a group of IP networks run by one or more network operators with a single, clearly defined routing policy. When exchanging exterior routing information, each AS is identified by a unique number: the Autonomous System Number (ASN)

'Recoiling' black holes

Context

- Supermassive Black hole Abell 2261 has gone missing. Experts say the black hole have been ejected from centre of galaxy due to recoiling.


Black holes
Black holes are created when giant stars, at least around 20 times the mass of the Sun, die.
HOW BLACK HOLES FORM
Nuclear reaction in core of a star produces energy and pressure. The pressure pushing out is countered by the gravitational forces created by the mass of the core to produce a stable star.
As black holes are invisible, they are detected by the effects they have on their surroundings:
Dying star
As nuclear energy starts running out, gravity starts to overcome pressure, increasing core density and gravitational force
Supernova
Nuclear reaction stops and the star explodes as a supernova, expelling outer parts of the star into space.
Collapse
The core collapses under its own weight into a single point of infinite density
Black hole
Gravitational forces at this stage are so strong light cannot escape from its pull
Quasar
Gas and space matter that are sucked into a black hole become rapidly heated and give off detectable radiation
Star
Core
Central singularity
Black hole
The edge or boundary is called the "event horizon"
Quasar
Particle jet
Stargazing
Scientists also look for orbit of stars or gas discs affected by the gravitational pull of black holes
Sources: NASA; Hubble Site, Space Telescope Science Institute (STScI)
F. Chan, 25/02/2015
REUTERS

About

- When two black holes merge, they release what are known as gravitational waves– invisible ripples travelling at the speed of light, which squeeze and stretch anything in their path.
- As per the theory of gravitational waves, during such a merger, when the amount of waves generated in one direction is stronger than another, the new big black hole can be sent away from the centre of the galaxy into the opposite direction. This is known as a "recoiling" black hole.

Note: Read about Black Holes in Details here: https://www.iasgyan.in/ias-gazette-magazine/the-ias-gazette-november-2020

National Innovation Foundation

Context

- The Union Minister for Science & Technology, Earth Sciences, and Health& Family Welfare recently dedicated an Innovation Portal, developed by National Innovation Foundation (NIF) – India.

NIF

- It is an autonomous body of the Department of Science and Technology (DST), Government of India.

NIP

- The National Innovation Portal (NIP) is currently home to about 1.15 lakh innovations scouted from common people of the country, covering Engineering, Agriculture, Veterinary and Human Health.
- In terms of domain areas, presently the innovations cover Energy, mechanical, automobile, electrical, electronics, household, chemical, civil, textiles, Farm/cultivation practice, storage practice, plant variety, plant protection, poultry, livestock management, nutraceuticals etc.
- Herbal practices which stem from tribal areas and is one of the key highlights of the Innovation Portal.

Significance

- This Innovation Portal will help institutionalize new ideas by common people towards finding solutions to local problems.

Active matter systems

Context

- Scientists have found a clue to dynamical origin of fluctuations in systems like fish schools, swarm of insects, flocking birds and bacterial colonies, which are called active matter systems.

About

- Active matter systems are made up of units that consume energy.
- Active matter exhibits a wide range of emergent non-equilibrium phenomena.
- Active matter encompasses synthetic and living systems, including active gels and the cytoskeleton, cells and tissues, Nano robots and micro robots, synthetic and biological micro swimmers, and animal herds.
- Physicists group flocks of birds, molecular motors and layers of vibrating grains together in this category because they all extract energy from their surroundings at a single particle level and transform it into mechanical work.
- Due to continuous energy input, such systems are driven far from equilibrium and exhibit, fascinating collective behaviors, like clustering, "giant" mass fluctuations and anomalous transport.
- By studying the anomalous behaviors that emerge, our understanding of these systems can be enhanced and new frameworks for investigating the statistical physics of out-of-equilibrium systems can be built.

Example

- The anomalous behavior of such systems can be understood by considering a cup of coffee, stirred with a spoon.
- If one stops stirring, the coffee will eventually come to rest, due to the internal viscous forces, which resist the fluid motion.
- In contrast, imagine "stirring" a bacterial solution, which, under suitable conditions (bacterial concentration), can exhibit perpetual or unceasing collective directed motion; in that case, the viscosity would vanish in such "active" bacterial fluids.
- Probing into this anomalous behavior, scientists studied a toy model of self-propelled particles and explained the dynamical origin of 'giant' mass fluctuations in the system, providing insights into the emergent properties of such active matters in general.

India Science

Context

- India Science, Nation's Science & Technology OTT (Over-the-top) channel has completed its second year of existence.

About

- **Aim:** To create scientific awareness & temper amongst the citizens of the country through the latest technology prevalent today like OTT.

Over the top (OTT) is film and television content that is provided via the Internet as opposed to the traditional means of a cable or satellite provider.
Common examples of OTT include services such as Netflix, Amazon Prime Video, Hulu, and HBO Now.
OTT allows individuals to avoid having to pay for bundles that are typical of cable and satellite, while selectively choosing their providers, at a much lower cost.
Transactional Video on Demand (TVOD) refers to renting or buying movies through certain providers, such as Apple TV, YouTube, and Vimeo.

CollabCAD

Context

- National Informatics Centre (NIC), MeitY along with Central Board of Secondary Education (CBSE), Ministry of Education is jointly launching CollabCAD Software.

About

- It is a collaborative network, computer-enabled software system, providing a total engineering solution from 2D drafting & detailing to 3D product design for students and faculty of Engineering Graphics Curriculum.
- This initiative aims to provide a great platform to students across the country to create and modify 3D digital designs with a free flow of creativity and imagination.
- This software would also enable students to collaborate over designs across the network and concurrently access the same design data for storage and visualization.

ENVIRONMENT

Leopard Census Report

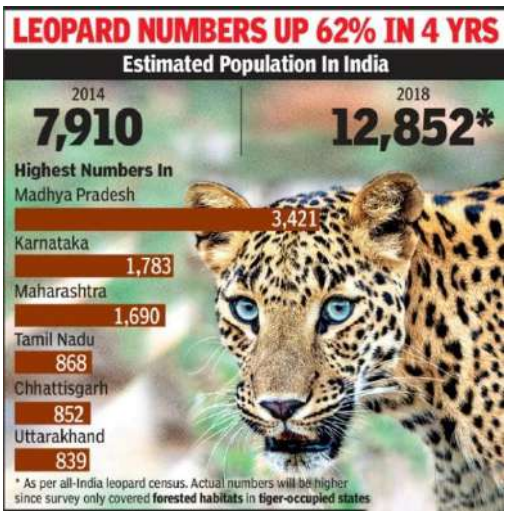
Context

- "India's leopard population **increased by 60% in 4 years"**, since 2014.
- Scientific monitoring of increase or a decrease in species numbers helps to determine whether the conservation efforts undertaken to preserve the species are bearing fruit.

Status of leopards in India, 2018

- **Status of leopards in India, 2018,** mentions that the country has **12,852 leopards.**
- This study focused mostly on **forested habitats** where tigers are found, as it was a by-product of the all-India tiger estimate.
- Hence, **other leopard habitats** such as rocky outcrops, smaller dry forests, higher elevation habitats in the Himalayas, agricultural landscapes (coffee, tea, areca nut, sugarcane plantations) where leopards are known to be found in good numbers **were not a part of this exercise**.
- Similarly, **much of Northeast India was excluded** from the study.

CAT STAT
India's leopard population increased to 12,852 in 2018 from 8,000 in 2014
At 8,071, highest number of leopards was found in central India and the Eastern Ghats
In the western ghat region, comprising Goa, Karnataka, Tamil Nadu and Kerala, 3,387 leopards were recorded
Leopard numbers have
been estimated using the camera trap method
In the Indian subcontinent, poaching, habitat loss, depletion of natural prey and conflict are major threats to the cat

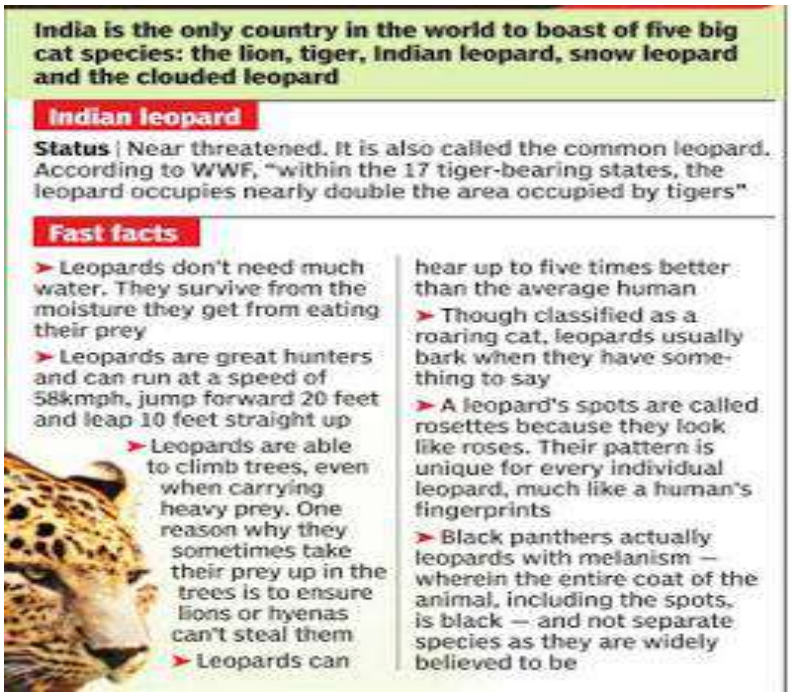


- Hence, the area studied by itself **does not represent a true pan-India leopard population,** as vast stretches of leopard habitats have been excluded from the study.

Misleading picture

- The claim that "leopard numbers increased by 60%" is quite misleading.
- In **2014**, the study estimated a minimum leopard population of 7,910 individuals from **18 different Indian States** covering a study area of 92,164 square kilometers.
- In **2018**, the study was expanded to **21 States** with a study area of 121,337 square kilometers, which shows a spatial increase in the size of the study area by 25%.

About leopard:


India is the only country in the world to boast of five big cat species: the lion, tiger, Indian leopard, snow leopard and the clouded leopard
Indian leopard
Status | Near threatened. It is also called the common leopard. According to WWF, "within the 17 tiger-bearing states, the leopard occupies nearly double the area occupied by tigers"
Fast facts
➤ Leopards don't need much water. They survive from the moisture they get from eating their prey
➤ Leopards are great hunters and can run at a speed of 58kmph, jump forward 20 feet and leap 10 feet straight up
➤ Leopards are able to climb trees, even when carrying heavy prey. One reason why they sometimes take their prey up in the trees is to ensure lions or hyenas can't steal them
➤ Leopards can hear up to five times better than the average human
➤ Though classified as a roaring cat, leopards usually bark when they have something to say
➤ A leopard's spots are called rosettes because they look like roses. Their pattern is unique for every individual leopard, much like a human's fingerprints
➤ Black panthers actually leopards with melanism — wherein the entire coat of the animal, including the spots, is black — and not separate species as they are widely believed to be

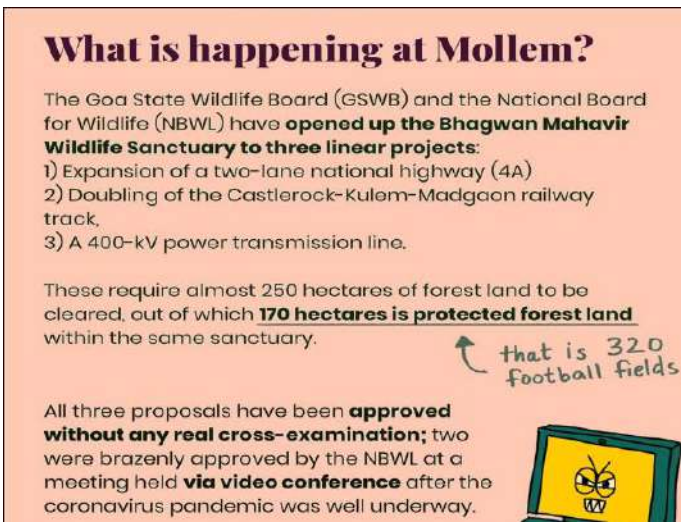
- **Main threats: Habitat loss due to mining and quarrying, poaching for body parts, mortality due to vehicular collisions, retaliatory killing due to human-leopard conflict and accidental deaths due to snares** set for catching wild prey.

'Save Mollem' Campaign

Context

- The 'Save Mollem' campaign has drawn in everyone from celebrities to politicians, protesting the lack of assessment of the threats posed by three proposed infrastructure projects.

What is the issue?


What is happening at Mollem?
The Goa State Wildlife Board (GSWB) and the National Board for Wildlife (NBWL) have opened up the Bhagwan Mahavir Wildlife Sanctuary to three linear projects:
1) Expansion of a two-lane national highway (4A)
2) Doubling of the Castlerock-Kulem-Madgaon railway track,
3) A 400-kV power transmission line.
These require almost 250 hectares of forest land to be cleared, out of which 170 hectares is protected forest land within the same sanctuary.
that is 320 football fields
All three proposals have been approved without any real cross-examination; two were brazenly approved by the NBWL at a meeting held via video conference after the coronavirus pandemic was well underway.

Probable ecological impacts

- These dense evergreen forests of Mollem at the edge of the **Western Ghats** support thousands of **indigenous people** and a huge **diversity of wildlife**: tigers, leopards, gaur, and over 200 species of birds.
- Linear projects like power transmission lines will **"act as barriers to movement, with many animals avoiding even narrow clearings"**.
- It would **disrupt ecological processes and gene flow** and affect seed dispersal and disease dynamics.

Bhagwan Mahaveer Wildlife Sanctuary

- It is a protected area located in the Western Ghats of West India, in **Goa State**, along the eastern border with Karnataka.
- **National Highway 4A divides it into two parts.**
- It contains several important temples dating to the Kadambas of Goa, and home to waterfalls, such as **Dudhsagar Falls and Tambdi Falls.**
- The parkland is also home to a community of **nomadic buffalo herders known as the Dhangar.**
- This area was first known as **Mollem Game Sanctuary**.
- It was declared a wildlife sanctuary in 1969 and renamed as **Bhagwan Mahaveer Sanctuary.**
- The core area of the sanctuary was notified as **Mollem National Park** in 1978.

Hedychium Coronarium

Context

- Two new species of ginger found from northeast.
- The Mahabharata epic describes Bhima, the second among the five-pandava brothers, going in search of the Kalyanasaugandhika, a flower with a heavenly fragrance, to satisfy Panchali's desire.
- Scientists have deduced that the mythological plant described by Vyasa is Hedychium coronarium, also known as **white ginger lily.**

About Hedychium mechukanum

- The new species **Hedychium mechukanum** is discovered from a location at Quing in **Arunachal Pradesh**.
- The species has large white flowers with a pleasant fragrance.
- The plant grows in open areas of evergreen forests.
- Flowering is from mid-June to September and fruiting from September to November.
- The species was named after the small town Mechuka bordering China.
- The species is listed as **Data Deficient under the IUCN guidelines.**

Amomum arunachalense

- It was collected from Nirjuli in Papum Pare district, **Arunachal Pradesh.**
- As many as 11 species of the Amomum genus are distributed in the northeastern and southern regions of India and the **Andaman and Nicobar islands.**

Distinguishing features

- The new species are distinguished from others in the genus mainly by a **white rhizome with a pale brown centre.**
- **Deforestation and extraction of shoots for medicinal purposes** are major **threat**s to these species.

Deepor Beel Wildlife Sanctuary

Context

- The Kamrup district administration has prohibited community fishing at Deepor Beel, a wetland on the south-western edge of Guwahati and Assam's only Ramsar site.
- The prohibition order under Section 144 of the Cr.PC underlines the possibility of community fishing on Bhogali Bihu.
- District officials said the order was necessary to prevent fishing, excavation and construction in and around the wetland that has been shrinking over the years.

Deepor Beel

- Deepor Beel was designated a Ramsar site in 2002 for sustaining a range of aquatic life forms besides 219 species of birds.
- It is a permanent freshwater lake in a former channel of the Brahmaputra River.
- The area of the wetland was about 6,000 hectares in the late 1980s. Satellite imagery has revealed that its area has shrunk by at least 35% since 1991.
- It is losing connectivity with small rivers like Kalmoni, Khonajan and Basistha that used to flow via the Mora Bharalu channel through Guwahati
- A Ramsar site is a wetland designated to be of international importance under the Convention on Wetlands on February 2, 1971, in the Iranian city of Ramsar on the Caspian Sea shore.

State of the Climate Report

Context

- 2020 was the eighth hottest on record since 1901, the India Meteorological Department (IMD) said in its **State of the Climate Report**.

Key highlights

- The annual mean **land surface air temperature** averaged over India during 2020 was nearly **0.3 degree Celsius above normal**.
- The monsoon and post-monsoon seasons contributed to most of the temperature rise this year with mean temperature in winter also above normal.
- **2020's monsoon rainfall was 9% above** its seasonal normal.
- Five cyclones formed over the North Indian Ocean in 2020 including the Super cyclonic Storm **AMPHAN, Very Severe Cyclonic Storms NIVAR & GATI, Severe Cyclonic Storm NISARGA, and Cyclonic Storm 'BUREVI'**.
- **Bihar & Uttar Pradesh** were the most adversely affected States by natural disasters during the year, which claimed more than 350 deaths from each State mainly due to **thunderstorm, lightning and cold waves.**
- Heavy rainfall and flood related incidents reportedly claimed over 600 lives from different parts of the country during pre-monsoon, monsoon and the post-monsoon seasons.
- Thunderstorms and lightning reportedly claimed 815 lives from different parts of the country.

Mudumalai Tiger Reserve

Context

- To increase the availability of food for vultures in the Mudumalai Tiger Reserve (MTR), the Forest Department is allowing dead cattle from a goshala (cow shelter) located nearby to be left for the scavengers.
- The decision was taken after conducting a thorough study, along with field inspections.
- Medical records and veterinarians from the Animal Husbandry Department confirmed that the goshala was not using Non-Steroidal Anti Inflammatory Drugs (NSAID) that are harmful to wildlife, including vultures.
- Mudumalai is home to **three critically endangered, and one endangered, species of vultures.**

Need for this

- The breeding success of a vulture pair depends on **food availability** in the region.

- The breeding success of vultures can vary due to a number of factors, with the most important being food availability.
- A pair of mating vultures may even abandon their nest due to a lack of food.
- Each vulture hatchling may stay within the nest for up to a year, and will be dependent on its parents' frequent feeding.
- It is for this reason that this initiative may prove to be extremely important in helping to ensure that vultures in the Mudumalai Tiger Reserve thrive
- Only those cattle that die of old age and natural causes will be left to scavengers.

Mudumalai National Park

- The Mudumalai National Park and Wildlife Sanctuary also a declared tiger reserve, lies on the northwestern side of the **Nilgiri Hills (Blue Mountains)**, in **Tamil Nadu**, India.
- It shares its boundaries with the states of Karnataka and Kerala.
- The protected area is home to several endangered and vulnerable species including Indian elephant, Bengal tiger, gaur and Indian leopard.
- There are at least 266 species of birds in the sanctuary, including **critically endangered Indian white-rumped vulture and long-billed vulture.**

Umed Paoni Karandla Wildlife Sanctuary

Context

- A tigress and her two cubs were found dead in the Umed Paoni Karandla Wildlife Sanctuary.

About Umed Paoni Karandla Wildlife Sanctuary

- It is spread over Bhandara district and Umred, Kuhi and Bhivapur Taluka of Nagpur district in **Maharastra.**
- This sanctuary has a **connection with Tadoba Andhari Tiger Reserve** through the forest along Wainganga river.
- The sanctuary is home to resident breeding tigers, herds of Gaur, wild dogs and rare animals like flying squirrels, pangolins and honey badgers.
- It is bounded roughly by the **Wainganga river** and the Gose Khurd Dam on the northeast.
- It is located 40 km north of Tadoba-Andhari Tiger Reserve and 50 km southwest of Nagzira Wildlife Sanctuary & 60 km from Nagpur, Maharashtra.
- Pench Tiger Reserve is 80 km to the northwest.
- Tigers are commonly seen here by many villages around the sanctuary.

Gangetic River Dolphin

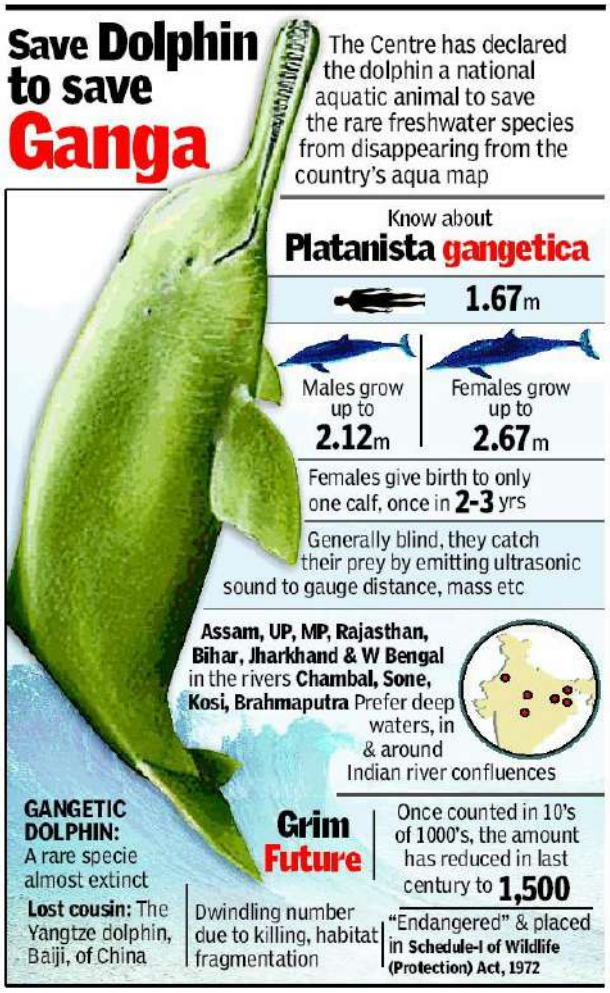
Context

- U.P. youth beat endangered Gangetic dolphin to death.

Ganges river dolphins

- Once lived in the Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of Nepal, India, and Bangladesh.
- The species is **extinct from most of its early distribution ranges.**
- The Ganges river dolphin can **only live in freshwater and is essentially blind**.
- They hunt by emitting **ultrasonic sounds**, which bounces off fish and other prey, enabling them to "see" an image in their mind.
- An **endangered species**, the Gangetic River Dolphin is recognised as the **National Aquatic Animal.**
- The Ganges river dolphin is important because it is a **reliable indicator of the health** of the entire river ecosystem.

PROJECT DOLPHIN
PRESERVING OUR UNDERWATER FRIENDS
10-YEAR PROJECT TO FOCUS ON BOTH RIVER AND SEA DOLPHINS
AIM TO STRENGTHEN BIODIVERSITY, CREATE EMPLOYMENT OPPORTUNITIES AND ATTRACT TOURISM
KILLING, HABITAT FRAGMENTATION BY DAMS AND BARRAGES AND INDISCRIMINATE FISHING HAS REDUCED THE GANGES RIVER DOLPHIN POPULATION FROM TENS OF THOUSANDS TO AROUND 3,700 OVER THE LAST CENTURY
GANGES RIVER DOLPHIN, A SPECIES OF FRESHWATER DOLPHINS, IS PRIMARILY FOUND IN GANGA AND BRAHMAPUTRA RIVERS, AND THEIR TRIBUTARIES IN INDIA, BANGLADESH AND NEPAL
IN INDIA, THESE DOLPHINS ARE SIGHTED IN DEEP RIVERS IN ASSAM, BIHAR, JHARKHAND, MADHYA PRADESH, RAJASTHAN, UTTAR PRADESH AND WEST BENGAL
GANGES RIVER DOLPHIN, OFFICIALLY DISCOVERED IN 1801, CAN LIVE ONLY IN FRESHWATER


Save Dolphin to save Ganga
The Centre has declared the dolphin a national aquatic animal to save the rare freshwater species from disappearing from the country's aqua map
Know about
Platanista gangetica
1.67m
Males grow up to 2.12m
Females grow up to 2.67m
Females give birth to only one calf, once in 2-3 yrs
Generally blind, they catch their prey by emitting ultrasonic sound to gauge distance, mass etc
Assam, UP, MP, Rajasthan, Bihar, Jharkhand & W Bengal in the rivers Chambal, Sone, Kosi, Brahmaputra Prefer deep waters, in & around Indian river confluences
GANGETIC DOLPHIN: A rare specie almost extinct
Lost cousin: The Yangtze dolphin, Baiji, of China
Grim Future
Dwindling number due to killing, habitat fragmentation
Once counted in 10's of 1000's, the amount has reduced in last century to 1,500
"Endangered" & placed in Schedule-I of Wildlife (Protection) Act, 1972

Advanced Biodigester Mk-II Technology

Context

- Defence Research and Development Organisation (DRDO), Government of India's premier research agency and Maharashtra Metro Rail Corporation (MAHA –METRO).
- It is a joint venture company of the GoI and Government of Maharashtra are working together **to conserve water and protect the environment** by installing DRDO's eco-friendly biodigester units (a non-sewered sanitation technology) in its facilities.
- The advanced biodigester Mk-II technology will be used for the **treatment of human waste (night soil)** in the metro rail network.

DRDO's biodigester

- It is an **indigenous, green and cost-effective technology**, with a rare distinction of having one of the largest numbers of DRDO-licensees (ToT holders).
- The technology has been revamped and further improved in a bid to **save the water and space.**
- A customized version of this MK-II Biodigester, suitable for treating human waste generated from houseboats in Dal Lake was successfully demonstrated by the DRDO to J&K Administration.
- The implementation of Biodigester MK-II in Srinagar is being monitored by a **committee of experts** under the Chairmanship of **Dr E Sreedharan**.
- This **green technology** will **significantly reduce the Dal lake pollution**.
- The new reactor is designed to increase biological reaction time, thereby enhancing the bio-degradation efficiency of the system.
- This technology was primarily developed for the armed forces in high altitude Himalayan regions, including Leh-Ladakh and Siachen glacier.

Dal Lake

- Dal is a lake in Srinagar, the **summer capital of Jammu and Kashmir**, India.
- It is an **urban lake**, which is the second largest in the union territory of Jammu and Kashmir.
- It is integral to tourism and recreation in Kashmir and is named the **"Lake of Flowers**", "Jewel in the crown of Kashmir" or "Srinagar's Jewel".
- The lake is also an important source for commercial operations in fishing and water plant harvesting.

Euphranta Siruvani'

Context

- A new species of fruit fly discovered from Coimbatore district in Tamil Nadu is named after Siruvani, an ecological hotspot in the Western Ghats.
- The fruit fly 'Euphranta siruvani' belonging to family Tephritidae was identified by researchers from a non-forest area near Siruvani.
- 104 known species from genus Euphranta are distributed across the world, of which 14 are found in India.
- The discovery of Euphranta siruvani is the new addition to the list.
- This fruit fly is differentiated from the other species of Euphranta by the **presence of a 'V'** shaped black band on the wing and prominent subapical band connected to the apical black patch.
- It lays eggs in fruits and the larvae feed on the pulp.

Siruvani Hills- A Butterfly Super-Hotspot

Context

- A six-year study conducted by The Nature and Butterfly Society (TNBS) has identified Siruvani hills in Coimbatore district as a butterfly super-hotspot.
- 240 (74%) out of 325 butterfly species found in T.N. from Siruvani hills between March 2015 and December 2020.
- As per a methodology formulated by TNBS, a place can be defined as a **hotspot if 25% (75 species and above) of the State checklist species (325) are found in a single area.**
- Butterfly presence **indicates a healthy ecosystem** and can **act as a measure of the overall eco-system.**
- The 240 butterflies are from six families — Swallowtails (17), Whites and Yellows (28), Brush-footed Butterflies (72), Blues (69), Metalmarks (1) and Skippers (53).
- The Brush-footed butterflies families are the most dominant here and rare sightings include **Nilgiri Tiger, Malabar Tree Nymph, Tawny Rajah and Tamil Catseye**.

Siruvani hills

- Siruvani and Muthikulam Hills are part of a wider hill range known as **Palghat (Palakkad) Hills that are forming part of Western Ghats.**
- Siruvani is also home to certain tribals like the **Mudugars and Irulars**.

Vedanthangal Bird Sanctuary

Context

- The Vedanthangal Bird Sanctuary was reopened for visitors on Sunday after a gap of nearly 10 months.

Vedanthangal Bird Sanctuary

- It is located in the state of **Tamil Nadu**, India.
- Vedanthangal is home to migratory birds such as pintail, garganey, grey wagtail, blue-winged teal, common sandpiper and the like.
- Vedanthangal is the **oldest water bird sanctuary in the country**.

National Energy Conservation Award

Context

- Telangana State Renewable Energy Development Corporation (TSREDCO) has bagged the national energy conservation award in the State Designated Agencies category for implementing and promoting various energy conservation programmes.
- TSREDCO is first in India to incorporate energy conservation building code (ECBC) in Municipal Act.
- Under the '**perform, achieve and trade' scheme**, about 2.5 lakh tonnes of oil equivalent of energy has been saved in the first two cycles.

Perform Achieve and Trade (PAT) scheme

- It is a flagship programme of Bureau of Energy Efficiency under the **National Mission for Enhanced Energy Efficiency (NMEEE).**
- NMEEE is one of the eight national missions under the **National Action Plan on Climate Change (NAPCC)** launched by the Government of India in the year 2008.
- It is regulatory instrument to reduce specific energy consumption in energy intensive industries, with an associated market based mechanism to enhance the cost effectiveness through certification of excess energy saving which can be traded.
- The trading of **energy saving certificates (ESCerts)** is central to the PAT programme and serves as an incentive to reach or surpass the mandatory targets.
- The **ESCerts, equivalent to 1 tonne of oil equivalent (toe) of energy savings**, are given based on quantified energy savings verified by an accredited energy auditor.
- The energy savings achieved by notified industries is converted into **tradable instruments called Energy Saving Certificates (ESCerts).**
- The ESCerts after issuance by **Bureau of Energy Efficiency** are traded at **Power Exchanges**.

Energy conservation building code (ECBC)

- The Energy Conservation Building Code (ECBC) was developed by the Govt. of India for **new commercial buildings** and released on 27th May 2007.
- ECBC sets minimum energy standards for commercial buildings having a connected load of 100kW or contract demand of 120 KVA and above.
- Presently, the code is in **voluntary phase of implementation**.
- **Development Authority:** Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India with support from USAID ECO II Project
- **Implementation Authority:** Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India with support from USAID ECO II Project

National energy conservation award

- Instituted jointly by the Bureau of Energy Efficiency and Ministry of Power.
- The awards are given to Industries, State Designated Agencies, Urban Local Bodies, Energy Efficient Appliances, Transport, Buildings and Institutions in recognition of their conservation measures every year.

Vedic Paint or Prakritik' Paint

Context

- This 'prakritik' paint will help farmers earn extra Rs 30,000 per animal per year
- This paint is **free from heavy metals** like lead, mercury, chromium, arsenic, cadmium and others.
- It is expected to **boost local manufacturing and create sustainable local employment** through technology transfer.

Vedic paint

- The **eco-friendly paint** will be launched in two variants - **Distemper and Emulsion.**
- This innovative new paint developed by **Khadi and Village Industries Commission.**
- Named as "**Khadi Prakritik Paint**", this is an eco-friendly, non-toxic first-of-its-kind product with **anti-fungal and anti-bacterial properties**.
- The Khadi Prakritik Paint is based on **cow dung** as its main ingredient.

- It is **cost-effective and odorless** and has been certified by **Bureau of Indian Standards.**

Khadi and Village Industries Commission

- It is a **statutory body** formed in April 1957 (During 2nd Five Year plan) by the Government of India, under the Act of Parliament, **'Khadi and Village Industries Commission Act of 1956'.**
- It is an **apex organisation** under the **Ministry of Micro, Small and Medium Enterprises**, with regard to khadi and village industries within India.
- It seeks to - "plan, promote, facilitate, organise and assist in the establishment and development of khadi and village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary.

Help farmers make extra income

- This **Khadi Prakritik Paint technology** will increase consumption of cow dung as a raw material for eco-friendly products and generate additional revenue to farmers and gaushalas.
- According to an estimate by the Government, the sale of this paint is expected to help farmers an extra income of Rs 30,000 per animal, per year.
- The utilization of cow dung will also clean the **environment and prevent clogging of drains.**
- Khadi Prakritik Emulsion paint meets **BIS** 15489:2013 standards; whereas Khadi Prakritik Distemper paint meets BIS 428:2013 standards.

Insect Apocalypse

Context

- Climate change, insecticides, herbicides, light pollution, invasive species and changes in agriculture and land use are causing Earth to lose **probably 1% to 2% of its insects each** year, as per the Proceedings of the National Academies of Sciences written by 56 scientists from around the globe.

Insect apocalypse

- The problem, sometimes called the insect apocalypse, is like a jigsaw puzzle.
- Insects "are absolutely the fabric by which Mother Nature and the tree of life are built.
- Two well known ones — **honeybees and Monarch butterflies** — best illustrate insect problems and declines.
- Honeybees have been in **dramatic decline because of disease, parasites, insecticides, herbicides and lack of food.**

Management Effectiveness Evaluation (MEE)

Context

- Management Effectiveness Evaluation (MEE) of 146 national parks and wildlife sanctuaries in the country is released.
- India has a network of 903 Protected Areas covering about 5 per cent of its total geographic area of the country.
- According to the survey, **Tirthan Wildlife Sanctuary and Great Himalayan National Park in Himachal Pradesh have performed the best** among the surveyed protected areas.
- From 2020 onwards, 10 best national parks, five coastal and marine parks and top five zoos in the country will be ranked and awarded every year.
- The Turtle Wildlife Sanctuary in Uttar Pradesh was the worst performer in the survey.
- **70% of the global tiger population, 70% of Asiatic lions and more than 60% of leopard population in India** is a certificate of India's thriving biodiversity as these big cats sit at the top of food chain and their growing numbers shows the well-being of the whole ecosystem.

Management Effectiveness Evaluation of Protected Areas

- It has emerged as a **key tool** that is increasingly being used by **governments and international bodies to understand strengths and weaknesses of the protected area management systems**.
- India has systematically designated its Protected Areas in four legal categories — **National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves under the Wildlife (Protection) Act, 1972.**
- Under this Act, India has 903 formally designated Protected Areas with a total coverage 1,65,012.6 square km.
- Among these are 101 National Parks, 553 Wildlife Sanctuaries, 86 Conservation Reserves and 163 Community Reserves.
- For the survey, 146 National Parks and Wildlife Sanctuaries across 29 states and Union territories were evaluated.

MEE-ZOO framework

- The Management Effectiveness Evaluation of Indian Zoos (MEE-ZOO) framework, proposes guidelines, criteria and indicators for evaluation of zoos of the country through Management Effectiveness Evaluation Process (MEE-ZOO) in a manner, which is discrete, holistic and independent.
- The assessment criteria and indicators look beyond the traditional concepts, include **issues of animal welfare, husbandry and sustainability of resources and finance.**
- The MEE-ZOO exercise is moving towards developing highest standards in Zoos across India and adhering to core values of **accountability, transparency, innovation, use of technology, collaboration and integrity to achieve the mandate of conservation of endangered species.**

Tirthan Wildlife Sanctuary

- Located in the Kullu district, Tirthan wildlife sanctuary is one of the most magnificent sanctuaries in **Himachal Pradesh**.
- The sanctuary is very famous among the pilgrims all over the country for the **hot springs originating in the mountain ridges surrounding the sanctuary.**
- **Khirganga, Hans Kund and Mantalai Rakti Sar** are the names of hot springs present in the region.
- The Great Himalayan National Park adjoins the Tirthan wildlife sanctuary on the southern side.
- It has one of the largest remaining populations of **Himalayan Tahr.**
- The wide variety of fauna present includes Jungle Cat, Brown Bear, Himalayan Brown Bear, Barking Deer, Snow Leopard, Himalayan Rhesus, Weasel etc.
- Flora includes moist Deodar, Ban Oak, Alpine, mixed Conifer tress etc.

Great Himalayan National Park

- This National Park is located in the state of **Himachal Pradesh**.
- It is listed under the **UNESCO World Heritage Sites list**.
- It is at the junction of world's two major bio-geographic realms: the **Indo-malayan realm to the south and the Palearctic realm to the north.**

Houbara Bustard

Context

- Pakistan has issued special permits to Dubai crown prince and five other members of their family to hunt houbara bustard during the 2020-21 hunting season.

The houbara bustard

- It is a **large terrestrial bird** found in parts of Asia, the Middle East and Africa — is known to migrate in thousands to the Indian subcontinent every winter.
- It is similar to the critically endangered Great Indian Bustard, which is native to India.
- After breeding during the spring season, the Asian bustards migrate south to spend the winter in Pakistan, the Arabian Peninsula and nearby Southwest Asia.
- Some Asian houbara bustards live and breed in the southern part of their ranges including parts of **Iran, Pakistan and Turkmenistan.**
- According to the International Fund for Houbara Conservation (IFHC), roughly 33,000 Asian houbara bustards and over 22,000 of the North African houbara bustards remain today.
- The main reasons for the decline in the species' population are **poaching, unregulated hunting and the degradation of its natural habitat**.
- The global population is listed as **Vulnerable on the IUCN Red List** since 2014.

ZSI Starts Tagging Olive Ridleys to Track Migration Path

Context

- The Zoological Survey of India has started tagging endangered olive ridleys to track their migration path in the off-shore waters of Odisha.
- **Rushikulya beach** is one of the largest mass nesting sites for sea turtles
- Lakhs of endangered turtles congregate for mass nesting along the Odisha coast including the **Gahirmatha Marine Sanctuary, the Rushikulya river mouth and the Devi river mouth annually.**
- The Wildlife Institute of India (WII) had last conducted a similar study in 2007-2010 to know the **migration path.**
- The study was then carried out to know their movement in sea so that the **area can be avoided for hydrocarbon exploration.**

Gahirmatha Marine Sanctuary

- Gahirmatha Marine Sanctuary is a **marine wildlife sanctuary located in Odisha** and is a very popular tourist attraction of Odisha in India.
- It is the **world's largest nesting beach** for Olive Ridley Turtles.
- It extends from **Dhamra River mouth in the north to Brahmani river mouth** in the south.
- It is very famous for its nesting beach for olive ridley sea turtles.

Bhitarkanika National Park

- Bhitarkanika National Park is a large national park in Odisha in eastern India.
- It was designated the status of a **Ramsar site** on 19 August 2002.
- The national park and wildlife sanctuary is **inundated by the rivers Brahmani, Baitarani, Dhamra, Pathsala**.
- It hosts many mangrove species, and is the **second largest mangrove ecosystem in India**.

2020 Adaptation Gap Report

Context

- According to the **2020 Adaptation Gap Report**, released by the **UN Environment Programme** (UNEP), as temperatures rise and climate change impacts intensify, nations must urgently step up action to adapt to the new climate reality or face serious costs, damages and losses.

Report highlights

- Climate change impacts will intensify and **hit vulnerable countries** and communities the **hardest**, even if we meet the Paris Agreement goals of holding global warming this century to well below 2 degrees Celsius and pursuing 1.5 degree Celsius.

Global commitment needed

- Annual adaptation costs in developing countries are estimated at $70 billion, but the figure could reach up to $300 billion in 2030, **and $500 billion in 2050.**
- Almost three-quarters of nations have some adaptation plans in place, but financing and implementation fall "far short" of what is needed, according to the UNEP report.
- Stepping up **public and private finance for adaptation** is, therefore, urgently needed.
- **Adaptation is a key pillar** of the Paris Agreement on Climate Change.
- It aims to **reduce countries and communities' vulnerability to climate change by increasing their ability to absorb impacts**.

Nature-based solutions

- The UNEP report underscored the **importance of nature-based solutions** as low-cost options that reduce climate risks, restore and protect biodiversity, and bring benefits for communities and economies.
- Its analysis of four major climate and development funds:
  - the **Global Environment Facility (GEF),**
  - **the Green Climate Fund (GCF),**
  - **the Adaptation Fund, and**
  - **the International Climate Initiative (IKI)**,
- Suggested that support for green initiatives with some element of nature-based solutions has risen over the last two decades.
- Cumulative investment for climate change mitigation and adaptation projects under the four funds stands at $94 billion.
- However, only $12 billion was spent on nature-based solutions, a tiny fraction of total adaptation and conservation finance, it added.

Cutting emissions will reduce costs

- **Cutting greenhouse gas emissions** will reduce the impacts and costs associated with climate change, according to the report.
- Achieving the 2 degrees Celsius target of the Paris Agreement could limit losses in annual growth to up to 1.6 per cent, compared to 2.2 per cent for the 3 degrees Celsius trajectory.
- UNEP urged all nations to pursue the efforts outlined in its **Emissions Gap Report**, which called for a **green pandemic recovery** and **updated Nationally Determined Contributions (NDCs) that include new net-zero commitments.**
- However, the world must also plan for, finance and implement climate change adaptation to support those nations least responsible for climate change but most at risk.

Nagi-Nakti Bird Sanctuary

Context

- 1st bird festival at **Nagi- Nakti bird sanctuaries in Bihar** to start from Jan 15.
- Nagi-Nakti bird sanctuary has been selected for this event because of its uniqueness.
- Apart from the dense deciduous forests and variety of birds and animals, there's unique rock formation in the area.

Kalrav

- Bihar's first state-level bird festival 'Kalrav' will be held at the world famous Nagi-Nakti bird sanctuaries in the Jamui district.
- The event is intended to **create awareness about conservation of birds and their habitat**, the wetlands.

Nagi- Nakti Bird Sanctuaries

- The Nagi- Nakti Bird Sanctuaries have been the **home** of a wide variety of indigenous species of birds and of **migratory birds** that turn up during the winters from places like **Eurasia, Central Asia, the Arctic Circle, Russia and Northern China.**
- Over 136 species of birds have been spotted at these sanctuaries.
- Around 1,600 **bar-headed geese**, which is about **3% of the global population** of this variety, have been seen here, as per a report of the Wetlands International.
- The Nagi Dam (791 ha) and Nakti Dam (332 ha) are two sanctuaries so close to each other that they can be taken as one bird area.
- In 2004, Nagi Dam Bird Sanctuary was declared an **Important Bird Area (IBA) by BirdLife International.**

Saksham Campaign

Context

- Petroleum & Natural Gas Ministry launches SAKSHAM campaign to spread awareness about green and clean energy.
- This pan-India campaign will focus on adoption of cleaner fuels.
- The campaign will spread awareness about key drivers that includes
  - moving towards a gas-based economy,
  - cleaner use of fossil fuels,
  - greater reliance on domestic sources to drive bio-fuels and
  - increased use of electric vehicles.

About Saksham

- **Saksham (Sanrakshan Kshamta Mahotsav)** is a campaign organised by **Petroleum Conservation Research Association (PCRA)** to sensitize the masses about conservation and efficient use of petroleum products, which will lead towards better health and environment.
- This campaign is aimed at showing the way forward for **making a change and enhancing the conservation capabilities of people.**
- It helps understand the need for fuel conservation and find solutions thereof.
- The campaign seeks to **promote effective utilization of petroleum products, something that will lead to environmental protection.**
- Its aim is to **educate the masses on how the efficient, and optimal use of energy can protect the health and the environment.**

Indian Star Tortoises

Context

- Forest officials seize 414 live Indian Star Tortoises.

Indian Star Tortoises

- They are protected under the **Schedule-1 of the Wildlife (Protection) Act, 1972.**
- The Indian star tortoise is a **threatened species** of tortoise found in dry areas and scrub forest in **India, Pakistan and Sri Lanka.**
- This species is quite popular in the **exotic pet trade**, which is the main reason it is endangered.
- The Indian star tortoise was upgraded to **CITES Appendix I** in 2019 (threatened with extinction) by full consensus among all member states (of CoP18 with 183 countries), giving it the highest level of international protection from commercial trade.
- Under the IUCN list, it is listed as **critically endangered**.

Punjab's Harike Wetland

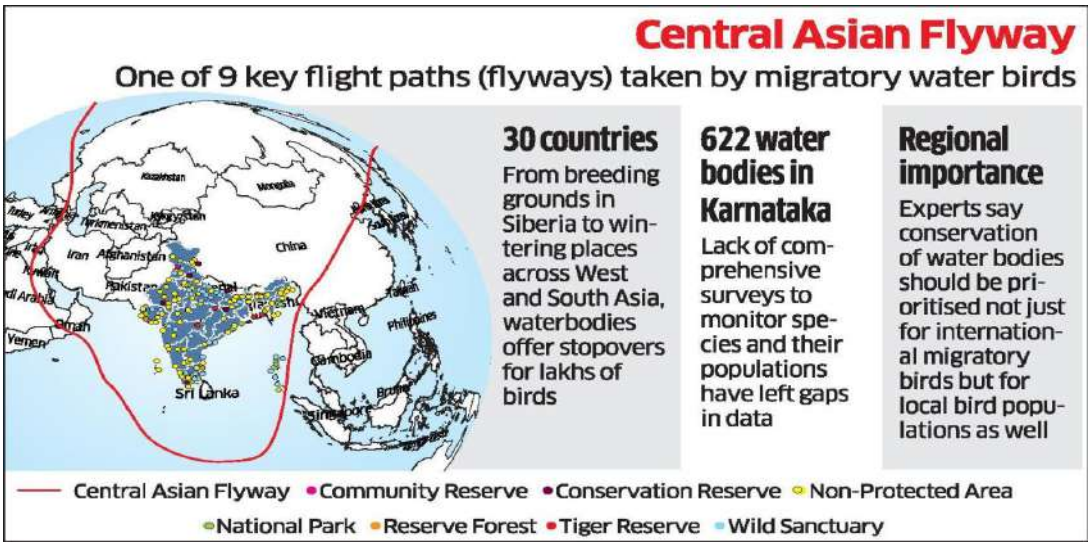
Context

Water birds make a beeline to Punjab's Harike wetland.

- Winter migratory water birds using the **central Asian flyway** have started making a beeline to Punjab's Harike wetland, offering a delight for bird lovers.

Central Asian flyway

- Every winter, the birds make their way to **India through the central Asian flyway**, which covers a large continental area of **Europe-Asia between the Arctic and Indian Oceans.**


Central Asian Flyway
One of 9 key flight paths (flyways) taken by migratory water birds
30 countries
From breeding grounds in Siberia to wintering places across West and South Asia, waterbodies offer stopovers for lakhs of birds
622 water bodies in Karnataka
Lack of comprehensive surveys to monitor species and their populations have left gaps in data
Regional importance
Experts say conservation of water bodies should be prioritised not just for international migratory birds but for local bird populations as well
China
Iran
Afghanistan
Pakistan
Sri Lanka
Philippines
Cambodia
Central Asian Flyway
Community Reserve
Conservation Reserve
Non-Protected Area
National Park
Reserve Forest
Tiger Reserve
Wild Sanctuary

Harike wetland

- The Harike wetland, one of the largest in northern India, is situated in Tarn Taran district of the Punjab state in India.
- It stands on the **confluence of the Beas and the Sutlej**.
- It is home to birds visiting from as far as the Arctic and Siberia.
- It is one of the **Ramasar sites in India**, for conservation, development and preservation of the ecosystem.
- It is a **man-made**, riverine, lacustrine wetland.
- The wetland was declared a **bird sanctuary in 1982 and named as Harike Pattan Bird Sanctuary.**

Nitrogen Use Efficiency

Context

- A team of scientist's reports physical attributes and genes that help identify which types of rice use nitrogen efficiently.
- Such knowledge could **help farmers use nitrogenous fertilizers efficiently**, save costs, as well as limit nitrogen-linked pollution, which contributes to climate change.

Indian Nitrogen Assessment

- The Indian government's subsidy on N-fertilizer (mainly urea) is over ₹ 50,000 crores per annum.
- The farmer pays only a quarter of the market price of urea and harvests a similar proportion of it into grain, at a Nitrogen Use Efficiency (NUE) of 25-30%.
- The rest of it is lost as N-pollution.
- According to the Indian Nitrogen Assessment (2017), agriculture accounts for over 70% of all nitrous oxide emission in the Indian environment, out of which 77% is contributed by fertilizers, mostly urea.
- Nitrous oxide is a greenhouse gas (GHG) that is 300 times more powerful than carbon dioxide.
- It has replaced methane as the second largest GHG emission from Indian agriculture over the last 15 years.
- Cereals account for over 69% of the total consumption of N fertilizers in India, with rice topping the list at 37%, followed by wheat (24%).

The International Nitrogen Initiative

- The International Nitrogen Initiative (INI) is an **international program**.
- It was set up in 2003 under sponsorship of the **Scientific Committee on Problems of the Environment (SCOPE) and from the International Geosphere-Biosphere Program (IGBP).**
- The **key aims** of the INI are to:
  - optimize nitrogen's beneficial role in sustainable food production, and
  - minimize nitrogen's negative effects on human health and the environment resulting from food and energy production.
- The INI holds a conference every three years, inviting members of the international nitrogen community to meet up and discuss ideas and exchange knowledge on nitrogen issues.
- The last INI conference was held in Melbourne, in December 2016. A key output of the conference was **The Melbourne Declaration.**

The Melbourne Declaration

- It recognize the **management of reactive nitrogen is closely related to the UN Sustainable Development. It calls for responsible Nitrogen Management for a sustainable future.**

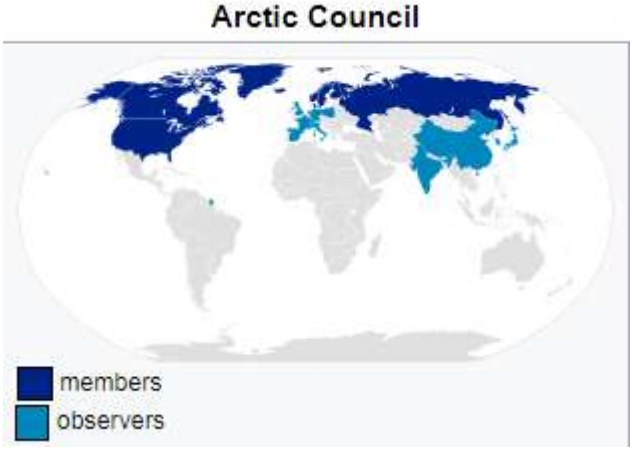
'Arctic' Policy

Context

- India has unveiled a new draft 'Arctic' policy that commits to expands scientific research, **"sustainable tourism" and mineral oil and gas exploration** in the Arctic region.

Key highlights

- **National Centre for Polar and Ocean Research** will lead scientific research and act as a **nodal body** to coordinate among various scientific bodies to promote domestic scientific research capacities by expanding "earth sciences, biological sciences, geosciences, climate change and space related programmes in Indian Universities."
- Objectives of the policy includes
  - putting in place Arctic related programmes for mineral/oil and gas exploration in petroleum research institutes and
  - encouraging tourism and hospitality sectors in building **specialised capacities and awareness to engage with Arctic enterprises.**
- The Arctic influences atmospheric, oceanographic and biogeochemical cycles of the earth's ecosystem.
- The loss of sea ice, ice caps, and warming of the ocean and atmosphere would lower salinity in the ocean, increase the temperature differential between land and oceans in the tropical regions, dry subtropical areas and increase precipitation at higher latitudes.
- Arctic research will help India's scientific community to



study melting rates of the third pole — the Himalayan glaciers, which are endowed with the largest freshwater reserves in the world outside the geographic poles.

- India launched its first scientific expedition to the Arctic in 2007 and set up a research station 'Himadri' in the international Arctic research base at Svalbard, Norway.

About Arctic Council

- The Arctic Council is a **high-level intergovernmental forum** that addresses issues faced by the Arctic governments and the indigenous people of the Arctic.
- The eight countries with sovereignty over the lands within the Arctic Circle constitute the members of the council **Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States.**
- Outside these, there are some observer states.
- The **1996 Ottawa Declaration** established the Arctic Council as a forum for promoting cooperation, coordination, and interaction among the Arctic states, with the involvement of the Arctic Indigenous communities and other Arctic inhabitants on issues such as sustainable development and environmental protection.
- Observer status is open to **non-Arctic states** approved by the Council at the Ministerial Meetings that occur once every two years. Observers have **no voting rights** in the Council.

New Ant Species

Context

- Two new species of a rare ant genus have been discovered in India.
- The species of the ant genus Ooceraea found in **Kerala, and Tamil Nadu** add to the diversity of this rare genus.
- They differ from others of the same genus on the basis of the number of antennal segments.
- One of them found in the **Periyar Tiger Reserve of Kerala**, has been named **Ooceraea joshii**, in honour of a distinguished evolutionary biologist.
- The newly discovered ant species with ten segmented antennae discovered, establish an old world lineage that contains a species emerging as the only model organism among the ant subfamily.

Periyar National Park and Wildlife Sanctuary (PNP)

- It is a protected area located in **Kerala**, India.
- It is notable as an **elephant reserve and a tiger reserve**.
- The park is a **repository of rare, endemic and endangered flora and fauna** and forms the major watershed of two important rivers of Kerala, the **Periyar and the Pamba.**
- The park is located high in the **Cardamom Hills and Pandalam Hills** of the south Western Ghats along the border with Tamil Nadu.

Green Tax

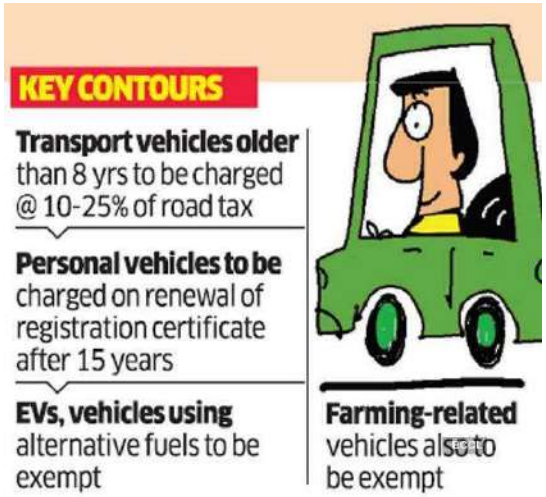
Context

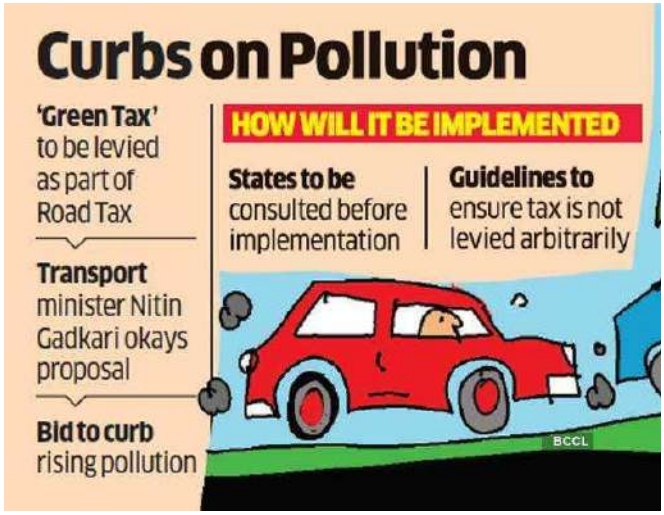
- The Union Minister for Road Transport and Highways has approved a proposal to **levy a "Green Tax" on old vehicles, which are polluting the environment**.
- The proposal will now go to the states for consultation before it is formally notified.
- The **main principles** to be followed while levying the Green Tax are :

- Transport vehicles **older than 8 years** could be **charged Green Tax** at the time of renewal of fitness certificate, at the rate of 10 to 25 % of road tax;
- Personal vehicles to be charged Green Tax **at the time of renewal of Registration Certification after 15 years;**
- **Public transport** vehicles, such as city buses, to be charged **lower Green** tax;
- Higher Green tax (50% of Road Tax) for vehicles being registered in highly polluted cities
- **Differential tax**, depending on fuel (petrol/diesel) and type of vehicle;
- Vehicles like strong hybrids, electric vehicles and alternate fuels like CNG, ethanol, LPG etc to be exempted;
- **Vehicles used in farming, such as tractor, harvester, tiller etc to be exempted**;
- **Revenue collected** from the Green Tax to be kept in a **separate account and used for tackling pollution**, and for States to set up **state of-art facilities for emission monitoring.**

The benefits of the "Green Tax" could be:

- To dissuade people from using vehicles which damage the environment
- To motivate people to switch to newer, less polluting vehicles
- Green tax will reduce the pollution level, and make the polluter pay for pollution.
- The Minister also approved the **policy of deregistration and scrapping of vehicles owned by Government department and PSU**, which are **above 15 years in age**.
- It is to be notified, and will come into effect from 1st April 2022.
- It is estimated that commercial vehicles, which constitute about 5% of the total vehicle fleet , contribute about 65-70% of total vehicular pollution.
- The older fleet, typically manufactured before the year 2000 constitute less that 1 % of the total fleet but contributes around 15% of total vehicular pollution.
- These older vehicles pollute 10-25 times more than modern vehicles.


KEY CONTOURS
Transport vehicles older than 8 yrs to be charged @ 10-25% of road tax
Personal vehicles to be charged on renewal of registration certificate after 15 years
EVs, vehicles using alternative fuels to be exempt
Farming-related vehicles also to be exempt


Curbs on Pollution
'Green Tax' to be levied as part of Road Tax
Transport minister Nitin Gadkari okays proposal
Bid to curb rising pollution
HOW WILL IT BE IMPLEMENTED
States to be consulted before implementation
Guidelines to ensure tax is not levied arbitrarily
BCCL

The Coalition for Disaster Resilient Infrastructure (CDRI)

Context

- Prime Minister's addressed the Climate Adaptation Summit 2021

The Coalition for Disaster Resilient Infrastructure (CDRI)

- CDRI was first proposed by Indian Prime Minister Narendra Modi during the 2016 Asian Ministerial Conference on Disaster Risk Reduction.
- It was launched by the Indian Prime Minister Narendra Modi at the 2019 UN Climate Action Summit in September 2019.
- The CDRI is the **second major coalition launched by India outside of the UN, the first being the International Solar Alliance.**
- The Coalition for Disaster Resilient Infrastructure (CDRI) is an international coalition of countries, United Nations (UN) agencies, multilateral development banks, the private sector, and academic institutions that aims **to promote disaster-resilient infrastructure.**

- **Its objective is to promote research and knowledge sharing** in the fields of infrastructure risk management, standards, financing, and recovery mechanisms.
- The **Global Commission on Adaptation** seeks to accelerate adaptation action and increase political support for building climate resilience.

National Marine Turtle Action Plan

Context

- Ministry of Environment Forest and Climate Change (MoEF&CC) released 'Marine Mega Fauna Stranding Guidelines' and 'National Marine Turtle Action Plan'.

National Marine Turtle Action Plan

- The documents launched contains **ways and means** to not only promote inter-sectoral action for conservation but also guide **improved coordination amongst the government, civil society and all relevant stakeholders** on the response to cases of stranding, entanglement, injury or mortality of marine mammals and also conservation of marine turtles.
- These two documents highlight actions to be taken for
  - handling stranded animals on shore,
  - stranded or entangled animals in the sea or on a boat,
  - management actions for improved coordination,
  - reducing threats to marine species and their habitats,
  - rehabilitation of degraded habitats,
  - enhancing people's participation,
  - advance scientific research and exchange of information on marine mammals and marine turtles and their habitats.

2021: Year of Indo-French Alliance Towards a Greener Planet

Context

- Minister for Environment, Forest and Climate Change and French Minister for Ecological Transition launched the **Indo-French Year of the Environment.**
- The basic **objective** is **to strengthen Indo-French cooperation in sustainable development, increase the effectiveness of actions in favor of global environment protection and give them greater visibility.**
- India-France alliance in working towards **climate change**.
- The Indo-French Year of the Environment over the **period 2021-2022** would be **based on five main themes:**
  - environmental protection,
  - climate change,
  - biodiversity conservation,
  - sustainable urban development, and
  - the development of renewable energies and energy efficiency.
- It is also a platform for engaging in discussions on critical areas of collaboration relating to environment and allied areas.

System of Environmental-Economic Accounting (SEEA)

Context

- The Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES)-India Forum 2021, organised by the Ministry of Statistics and Programme Implementation (MoSPI) in a virtual format.

NCAVES Project

- The NCAVES Project, **funded by EU**, has been **jointly implemented** by the
  - United Nations Statistics Division (UNSD),
  - the United Nations Environment Programme (UNEP) and
  - the Secretariat of the Convention of Biological Diversity (CBD).

- India is one of the five countries taking part in this project - the other countries being **Brazil, China, South Africa and Mexico.**
- In India, the NCAVES project is being **implemented by the MoSPI in close collaboration with the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the National Remote Sensing Centre (NRSC).**
- The participation in the project has helped MOSPI commence the compilation of the Environment Accounts as per the **UN-SEEA framework** and release environmental accounts in its publication "EnviStats India" on an annual basis since 2018.
- Under the NCAVES project, the **India-EVL Tool** is developed, which is essentially a look-up tool giving a snapshot of the values of various ecosystem services in the different States of the country, based on about 80 studies conducted across the country.

What is the SEEA?

- The System of Environmental-Economic Accounting (SEEA) is **a framework that integrates economic and environmental data** to provide a more comprehensive and multipurpose view of the **interrelationships between the economy and the environment** and the stocks and changes in stocks of environmental assets, as they bring benefits to humanity.
- SEEA is described as a satellite system to the **United Nations System of National Accounts (SNA).**
- It contains the internationally agreed standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics and accounts.
- The SEEA framework follows a **similar accounting structure as the System of National Accounts (SNA).**
- The framework uses concepts, definitions and classifications consistent with the SNA in order to facilitate the integration of environmental and economic statistics.
- The SEEA is a multi-purpose system that generates a wide range of statistics, accounts and indicators with many different potential analytical applications.
- It is a flexible system that can be adapted to countries' priorities and policy needs while at the same time providing a common framework, concepts, terms and definitions.

National Faecal Sludge and Septage Management (NFSSM) Alliance

Context

- NITI Aayog Releases Report on Faecal Sludge and Septage Management in Urban Areas.
- Jointly developed with **National Faecal Sludge and Septage Management (NFSSM) Alliance**.
- It presents 27 case studies across 10 states and various service and business models adopted by Indian cities while implementing faecal sludge and septage management (FSSM) initiatives.
- **Safe sanitation is a strong contributor to both public health and environmental sustainability**, and needs focused attention, especially the safe and complete treatment of all human waste.

NFSSM Alliance

- It was established with support from the **Bill and Melinda Gates Foundation in 2016** to support safe sanitation at the national, state and city level.
- The Alliance is recognized as the **collaborative body** that drives the discourse of faecal sludge and septage management (FSSM) forward in India.
- The NFSSM Alliance in collaboration with the **Ministry of Housing and Urban Affairs (MoHUA) and the Department of Drinking Water and Sanitation (DWS)** has been instrumental in the passage of **India's first national policy on FSSM** in 2017.
- It has worked with state governments on various innovative models, policies and guidelines across the sanitation value chain to ensure our cities' waste is effectively managed.
- The models captured in this report will help other states and cities replicate and scale them up to achieve 100% effective management of India's faecal sludge and septage in the next five years.

The National Policy on Faecal Sludge and Septage Management (FSSM)

- It was issued by **Ministry of Urban Development** in February 2017 with support and inputs from the NFSSM Alliance.

Key features of the policy:

- State level guidelines, framework, objectives, timelines and implementation plans to address septage management
- Formulating strategy on central level to initiate capacity building for training on FSSM
- Sanitation benchmark framework which shall be used by ULBs to **develop database, registry of certified on site sanitation system and robust reporting format**
- **Funding** for facilitation of FSSM projects and encouragement to increase public private partnerships (PPP)
- Achieving **integrated citywide sanitation** along with safe disposal

Objectives

- The key objective of the urban FSSM Policy is to **set the context, priorities, and direction for nationwide implementation of FSSM services** in all ULBs so that safe and sustainable sanitation becomes a reality.
- **Suggest and identify ways and means,** including the methods and resources, towards creation of an enabling environment for realising safe and sustainable FSSM in India.
- **Define the roles and responsibilities** of various government entities and agencies, and of other key stakeholders such as the private sector, civil society organisations and citizens for effective implementation of FSSM services throughout the country.
- Enable and support **synergies** among relevant **Central Government programs** such as SBM, AMRUT and the Smart Cities Mission to realise safe and sustainable sanitation for all at the earliest, possibly by the year 2019.
- **Mitigate gender-based sanitation insecurity** directly related to FSSM, reducing the experience of health burdens, structural violence, and promote involvement of both genders in the planning for and design of sanitation infrastructure.

SECURITY

Sea Vigil 2021

Context

- Maritime security, coastal defence exercise begins.

Sea Vigil 2021

- The Sea Vigil 2021, a biennial exercise that began in January 2019.
- It was undertaken along the entire 7516 km coastline and Exclusive Economic Zone of India and involved all the 13 coastal States and Union Territories along with other maritime stakeholders, including the fishing and coastal communities.
- The exercise was a build up towards the major Theatre-level exercise TROPEX (Theatre-level Readiness Operational Exercise)" conducted by the Navy every two years.
- "Sea Vigil and TROPEX together cover the entire spectrum of maritime security challenges, including transition from peace to conflict.
- It provides a realistic assessment of strengths and weaknesses and thus helps in further strengthening maritime and national security.

TROPEX

- It stands for Theatre-Level Readiness and Operational Exercise, and is carried out by the Indian Navy every two years.
- In the intervening period, the Western Naval Command and the Eastern Naval Command hold their individual exercises.
- TROPEX assesses the operational preparedness of the Navy.
- The last TROPEX was carried out in 2019, involving around 60 Naval ships along with 12 Coast Guard vessels and 60 planes.
- Besides the Navy, units from the Army, IAF and Coast Guard take part in the exercise to bolster interoperability.
- TROPEX typically includes three phases – the independent workup phase, the joint workup phase, and the tactical phase.
- In the last one, an actual war-like situation is simulated.

ASMI

Context

- **Asmi-India's first indigenous 9mm Machine Pistol** has been jointly developed by DRDO and Indian Army.
- DRDO's Armament Research & Development Establishment (ARDE), Pune have designed and developed this weapon.
- The **Machine Pistol fires the in-service 9mm ammunition and sports** an upper receiver made from aircraft grade Aluminium and lower receiver from carbon fiber.
- **3D Printing process has been used in designing and prototyping** of various parts including trigger components made by metal 3D printing.
- The weapon has huge potential in Armed forces as personal weapon for heavy weapon detachments, commanders, tank and aircraft crews, drivers/dispatch riders, radio/radar operators, Closed Quarter Battle, counter insurgency and counter terrorism operations etc.
- This is also likely to find huge employability with the central and state police organizations as well as VIP protection duties and Policing.
- The Machine Pistol is likely to have production cost under rupees 50000 each and has potential for exports.
- The weapon is aptly named **"Asmi"** meaning "Pride", "Self-Respect" & "Hard Work".

Indigenous Technology for Surveillance

Context

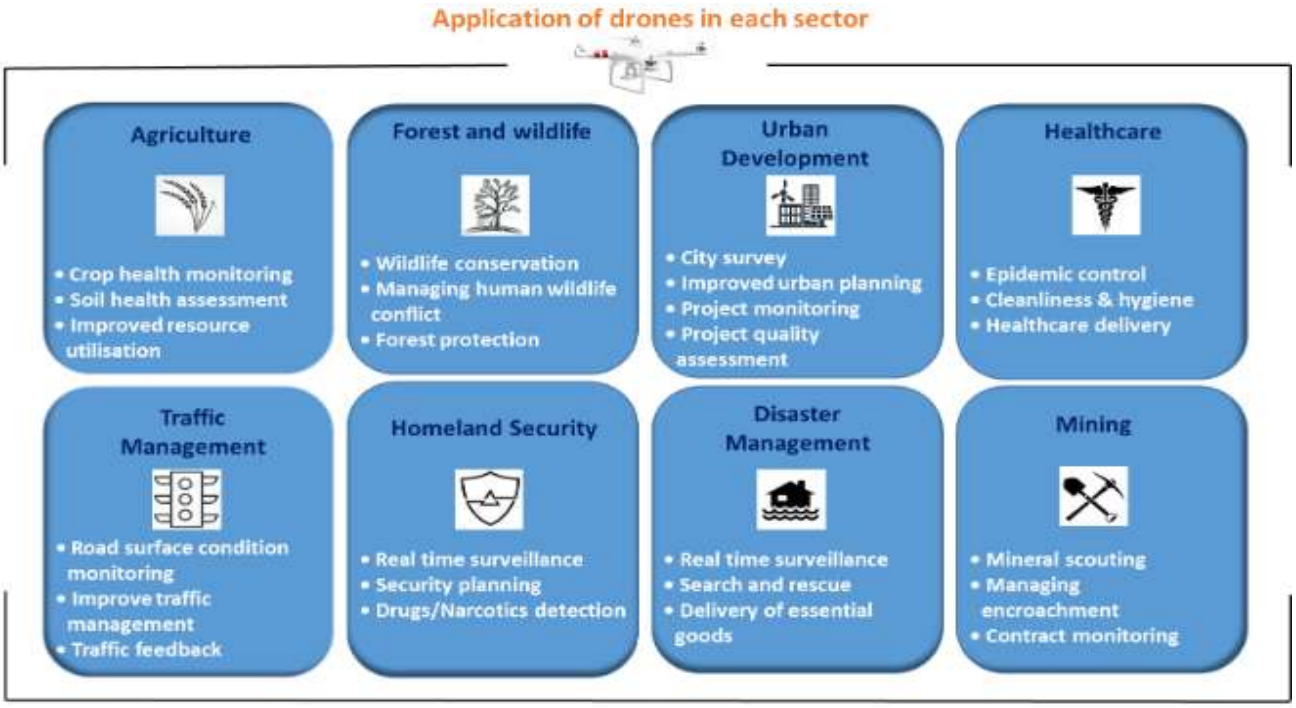
- The Indian Army has signed a $20-million contract with ideaForge, a player in unmanned aerial vehicle (UAV) technology, to procure undisclosed quantities of a high-altitude variant of **SWITCH UAV**, an indigenous system used in surveillance operations.

SWITCH UAV

- SWITCH UAV is an indigenous system built to cater to the most demanding surveillance operations of the Indian forces.
- This fixed-wing vertical take-off and landing UAV can be deployed at high altitudes and under harsh environments for day and night surveillance.

What are drones?

- Drones: formally known as Unmanned Aerial Vehicles (UAV)
- A drone is essentially an aircraft without a human pilot on board; a "flying robot"
- Historically, UAVs were simple remotely piloted aircraft, but autonomous control is increasingly being employed
- Its flight is controlled either autonomously by onboard computers or by the remote control of a pilot on the ground or in another vehicle.



Desert Knight-21

Context

- **Indian Air Force and French Air** and Space Force conducted a bilateral Air exercise, Ex Desert Knight-21 at Air Force Station Jodhpur from 20 to 24 Jan 2021.
- French side participated with Rafale, Airbus A-330 Multi-Role Tanker Transport (MRTT), A-400M Tactical Transport aircraft and approximately 175 personnel.
- The Indian Air Force aircraft participating in the exercise included Mirage 2000, Su-30 MKI, Rafale, IL-78 Flight Refueling Aircraft, AWACS and AEW&C aircraft.
- As part of Indo-French defence cooperation, Indian Air Force and French Air and Space Force have held six editions of Air Exercises named '**Garuda'**.
- The exercise is **unique as it includes fielding of Rafale aircraft by both sides and is indicative of the growing interaction between the two premier Air Forces.**

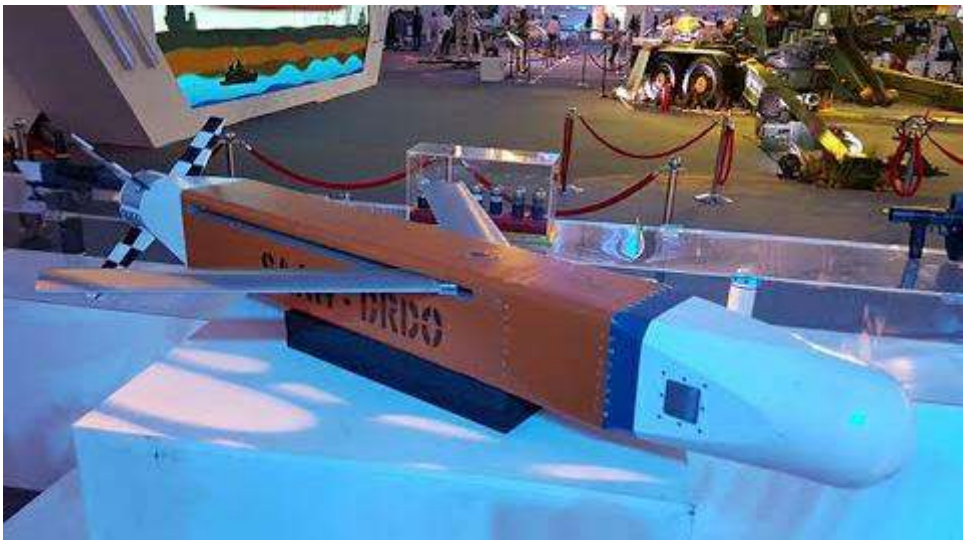
Smart Anti Airfield Weapon

Context

- DRDO successfully conducted **captive and release trial of indigenously developed Smart Anti-Airfield Weapon (SAAW)** from Hawk-I of Hindustan Aeronautics Limited (HAL) off the Odisha coast on 21 January 2021.
- The smart weapon was successfully test fired from **Indian Hawk-Mk132 of HAL**.
- This was the 9th successful mission of SAAW conducted by DRDO till now.

SAAW

- It is **indigenously designed and developed by DRDO's** Research Centre Imarat (RCI) Hyderabad.
- This is **125 Kg class smart weapon, capable of engaging ground enemy airfield assets** such as radars, bunkers, taxi tracks, and runways etc. **up to a range of 100 kms**.
- The **high precision guided bomb** is **lightweight** as compared to weapon system of the same class.
- The weapon was earlier successfully test fired from Jaguar aircraft.



Indian Hawk-Mk132

- The BAE Systems Hawk is a **British single-engine, jet-powered advanced trainer aircraft**.
- It has been used in a **training capacity and as a low-cost combat aircraft.**
- The Hawk is still in production in the UK and **under license in India by Hindustan Aeronautics Limited (HAL).**

KAVACH and AMPHEX-21

Context

- Joint Military Exercise in Andaman Sea.
- Towards enhancing joint operational readiness, Indian Armed Forces conducted a large-scale **conjoint military training exercise** "KAVACH" along with "AMPHEX-21" in the **Andaman Sea and Bay of Bengal.**
- The exercise was conducted under the aegis of Andaman and Nicobar Command (ANC) with participation of Eastern Naval Command (ENC) and Army Southern Command (SC) involving assets of Army, Navy, Air Force and Coast Guard.
- It aims to **validate air dominance and maritime strike capability within the area of interest in Indian Ocean Region (IOR).**
- The exercise also **validated joint capabilities of intelligence gathering from space, air, land and sea based assets**, its synthesis, analysis and near real time sharing to achieve battlefield transparency for quick decision-making.
- The joint force executed multi-domain, high intensity offensive and defensive manoeuvres in the Andaman Sea and Bay of Bengal.
- The tri-services exercise fine-tuned joint war fighting capabilities and Standard Operating Procedures towards enhancing operational synergy.

AMPHEX – 21

- A large-scale **tri-service joint amphibious exercise** AMPHEX – 21 was conducted in Andaman & Nicobar group of islands from 21 – 25 Jan 2021.
- The exercise was aimed at validating India's capabilities to safeguard the territorial integrity of its island territories.
- **Ex KAVACH** for defence of Andaman & Nicobar Islands **formed a part of AMPHEX – 21**.

Rising 'Silent Cyber Risks'

Context

- With unknown cyber risks on the rise, the **Working Group, set up by the Insurance Regulatory and Development Authority of India (Irdai),** has proposed detailed regulations to address the issue.

Silent cyber

- Silent cyber is the **unknown exposure in an insurer's portfolio created by a cyber peril,** which has not been explicitly excluded or included.
- This is also known as **"unintended" or "non-affirmative" cyber coverage.**
- Cyber exposure is a concern for all underwriters.
- Cyber affirmative and silent covers are scattered in many different products beyond standalone ones.
- Cyber risk permeates all classes of insurance without boundaries of industries.
- With technology improving and digital business expanding, silent cyber risks, especially in the banking sector, have also increased.
- A cyber event can trigger losses across various lines of insurance — property damage and business interruption, resulting from computer systems failure or virus under property insurance, siphoning money through phishing under crime insurance, product liability or recalls from security vulnerabilities under product liability/ recall insurance, breach of contract or negligence claims under E&O (technology errors and omissions) insurance and for managerial negligence under D&O (directors and officers) insurance.
- Cyber risks, involving unknown developments through the debit and credit cards, mobile phones and online deals, have raised concerns for insurers and the insured.
- The working group said it is desirable now to **focus on popularising the cyber insurance product**, make it easier for insurer to adapt the product as per the customer requirements and continue to enrich customer's experience and protection.

IN FACT-81

Context

- Indian Naval **Fast Attack Craft (IN FAC) T-81** of the Super Dvora MK II class, was decommissioned on 28 Jan 21 at Naval Dockyard, Mumbai after having served the nation successfully for more than 20 years.
- The 25 meters long vessel with 60 tonnes displacement was built at **Goa Shipyard Ltd. in collaboration** with M/s Ramta of **Israel.**
- The ship, specially designed for **shallow waters**, could achieve speeds up to 45 knots and had the capability of day/night surveillance and reconnaissance, Search & Rescue, beach insertion, extraction of Marine Commandoes and high-speed interception of intruder craft.

Ankara Declaration

Context

- India calls for greater cooperation to eliminate terrorism in all its forms.
- India placed this demand at the **17th Ministerial Meeting of Asia Cooperation Dialogue** held virtually on the theme, **'The New Normal and Safe and Healthy Tourism'.**
- Underlining that terrorism continues to pose a critical threat to global peace and security, India called for greater cooperation to eliminate the menace in all its forms.

- India emphasised that handling common challenges in the Indo-Pacific region, with ASEAN at its centre, require renewed coordination and cooperation.
- The **Indo-Pacific Oceans Initiative (IPOI),** calls for a **free, open, inclusive and rules-based Indo-Pacific region, which promotes Security and Growth for All in the Region (SAGAR)**.
- Even amid the ongoing pandemic, terrorism continues to pose a critical threat.
- At the end of the meeting, the 'Ankara Declaration' was adopted by all the Asia Cooperation Dialogue countries.
- **Ankara Declaration on future cooperation perspectives will serve as an "important roadmap" for future Asia Cooperation.**
- **Turkey's presidency** for the 2019-2020 terms was also extended until September 2021 during the meeting.
- The last meeting of the forum was held in Qatar's capital Doha on May 1, 2019.

www.aptiplus.in
APTI PLUS
Academy for Civil Services Pvt. Ltd.
Join the best IAS Institute in Eastern India
to crack the Nation's most prestigious service
ADMISSIONS OPEN FOR UPSC CSE 2022
Renowned Faculty Members from Delhi
Highest Success Ratio in Eastern India
Home Learning Program with Advanced LMS
Personal guidance for the journey from Prelims to Interview
Online & Offline Mock Tests
Offline Classes from April 2021*
*(As per Govt. approval)
For detail: 88203 41777, 81007 65577

1. Consider the following statements about the Khadi & Village Industries Commission (KVIC):

1. It is a statutory body.
2. It is an apex organisation under the Ministry of Textiles, with regard to village industries within India.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

2. Consider the following statements about the International Organization of Securities Commissions (IOSCO):

1. It is an association of organizations that regulate the world's futures markets.
2. It works with representatives from central banks on the global regulatory reform agenda.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

3. Consider the following statements about the GAVI:

1. It is a public–private global health partnership with the goal of increasing access to immunisation in poor countries.
2. It has observer status at the World Health Assembly.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

4. Consider the following statements about the Kaziranga National Park:

1. It is an UNESCO World Heritage Site.
2. BirdLife International recognizes it as an Important Bird Area.
3. It is a Ramsar site.

Which of the statements given above is/are correct?

a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

5. Consider the following statements about the Central Vigilance Commission (CVC):

1. It has power to register criminal cases and disciplinary cases.
2. It has supervisory powers over the Central Bureau of Investigation.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

6. Consider the following statements about the Muslim Women (Protection of Rights on Marriage) Act, 2019:

1. It makes all declaration of talaq including in written or electronic form to be void and illegal.
2. A married Muslim woman shall be entitled to subsistence allowance in the event of pronouncement of talaq by her husband.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

7. Consider the following statements about Ethanol Blending Programme (EBP):

1. The Ministry of Petroleum & Natural Gas implements this programme through Oil Marketing Companies (OMCs).
2. Under this programme, the government has set a 10% blending target for mixing ethanol with petrol by 2022 & 20% blending target by 2030.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

8. Which of the following acts is/are amended or subsumed under the Industrial Relations Code, 2020?

1. The Trade Unions Act, 1947.
2. Equal Remuneration Act, 1976.
3. The Industrial Disputes Act, 1947.

Choose the correct answer using the code given below:

a) 1 only b) 2 and 3 only
c) 3 only d) 1 and 3 only

9. Consider the following statements about the Ordinance making powers of the President:

1. The President can only promulgate an Ordinance when either of the two Houses of Parliament is not in session.
2. The President cannot promulgate an Ordinance unless he is satisfied that there are circumstances that require taking 'immediate action'
3. Ordinances must be approved by Parliament within six weeks of reassembling.

Which of the statements given above is/are correct?

a) 1 & 2 only b) 2 and 3 only
c) 1 & 3 only d) 1, 2 and 3 only

10. Consider the following statements about the CEPI:

1. It is a public–private global health partnership with the goal of increasing access to immunisation in poor countries.
2. Its mission is to accelerate the development of vaccines against emerging infectious diseases and enable equitable access to these vaccines for people during outbreaks.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

11. Consider the following statements about the Magneto-telluric (MT):

1. It is a geophysical method, which uses natural time variation of the Earth's magnetic and electric fields to understand underground structure and processes.
2. Its measurements ascertain the presence of fluid in geological structure, which enhances the possibility of triggering earthquakes.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

12. Consider the following statements:

1. Chairman of Rajya Sabha, is removed from office by a resolution passed by a majority of its members and agreed to by the Lok Sabha.
2. Like the Lok Sabha, a member of the Rajya Sabha can bring to the house a no-confidence motion against the government.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

13. Consider the following statements Waterbird Population Estimates (WPE) project:

1. This project has been developed by BirdLife International's.
2. It support the development of Ramsar Convention on Wetlands, the Convention on Migratory Species and the Convention on Biological Diversity;

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

14. Consider the following statements about the National Nutrition Mission (NNM):

1. Andhra Pradesh ranked 1st in the country for overall implementation of Poshan Abhiyan.
2. NNM targets to reduce stunting, under-nutrition, anemia and reduce low birth weight by 5% per annum.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

15. Consider the following statements about the Kolam:

1. It is a form of drawing that is drawn by using rice flour or synthetically colored powders.
2. The mathematical properties of Kolam are being used in the computer science field.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

16. Consider the following statements about the National Board for Wildlife:

1. It is a statutory Board constituted under the Wild Life (Protection) Act, 1972
2. It is chaired by the Minister of environment, forest and climate change.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

17. Consider the following statements about the National Bank for Agriculture and Rural Development (NABARD):

1. It was established on the recommendations of B. Sivaraman Committee.
2. It regulates and supervises the cooperative banks and the Regional Rural Bank (RRB's), throughout the entire India.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

18. Which of the following components are considered for deciding the price of the Petrol?

1. Price charged to dealers

2. Excise duty
3. Dealer commission

Which of the statements given above is/are correct?

a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

19. Consider the following statements about the National Payments Corporation of India (NPCI):

1. It is a not-for-profit organisation, established by the Internet and Mobile Association of India (IAMAI).
2. It is an umbrella organisation for operating retail payments and settlement systems in India.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

20. Consider the following statements:

1. Ken is the tributary of the Ganga River.
2. Ken river passes through the Panna tiger reserve.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

21. Consider the following statements:

1. Fair and Remunerative Price (FRP) of sugarcane is decided by the central government on the recommendations of the Cabinet committee of Economic affairs.
2. On the recommendations of the Dr. C. Rangarajan committee sugar sector was deregulated in India.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

22. Which of the following pairs is/are correctly matched?

	Geographical Indications	State
1.	Muga Silk	Assam
2.	Bhagalpur Silk	Bihar
3.	Tangaliya Shawl	Nagaland

Which of the statements given above is/are correct?

a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

23. Consider the following statements about the Shree Jagannath Temple:

1. It was built by the Ganga dynasty king Anantavarman Chodaganga.
2. Vallabhacharya and Ramananda were closely associated with this temple.
3. It is a prominent and gigantic example of Pidha Deula style of temple architecture.

Which of the statements given above is/are correct?

a) 1 & 2 only b) 2 only
c) 1 & 3 only d) 1, 2 & 3

24. Which of the following are included for calculating the EBITDA of a company?

1. Depreciation
2. Amortization
3. Taxes

Choose the correct answer using the code given below:

a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

25. Which of the following is/are surveillance programmes of the government of India?

1. Centralised Monitoring System
2. NETRA
3. National Intelligence Grid

Choose the correct answer using the code given below:

a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

26. Consider the following statements about the Atal Tinkering Laboratories (ATLs):

1. It is an initiative of the National Institution for Transforming India (NITI Aayog).
2. Only Government and local body schools are eligible to set up ATL.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

27. Consider the following statements about the Igneous rocks:

1. These are formed by the accumulation or deposition of mineral or organic particles at the Earth's surface
2. These rocks do not contain any fossils.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

28. Consider the following statements about the Khadi Prakritik Paint:

1. It is based on cow dung as its main ingredient.
2. Khadi and Village Industries Commission develop this innovative new paint with antifungal and antibacterial properties.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

29. Consider the following statements about the Energy conservation building code (ECBC):

1. It was adopted for both old and new residential buildings.
2. The Bureau of Energy Efficiency (BEE) with support from USAID ECO II Project implements this project.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

30. Consider the following statements about the Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India (SHAKTI):

1. It was launched with an aim to auction long-term coal linkages to power companies.
2. It will cut down on the use of imported coal.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

31. Which of the following missions is/are national missions under the National Action Plan on Climate Change (NAPCC)?

1. National mission for a green India
2. National wind energy mission
3. National mission on strategic knowledge for climate change

Choose the correct answer using the code given below:

a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

32. Consider the following statements about the Bureau of Indian Standards (BIS):

1. It is a statutory body working under the aegis of Ministry of Consumer Affairs, Food & Public Distribution.
2. BIS implements Hallmarking and ECO Mark Scheme of certification.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

33. Which of the following countries is/are members of both Shanghai Cooperation Organisation (SCO) and South Asian Association for Regional Cooperation (SAARC)?

1. China
2. India
3. Pakistan

Choose the correct answer using the code given below:

a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

34. Consider the following statements about the Energy Conservation and Commercialization II (ECO-II) Project:

1. It is part of USAID's strategic objective of Improved Access to Clean Energy and Water.
2. It is funded by the World Bank.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

35. Consider the following statements about the Himalayan tahr:

1. They are found only in Sikkim.
2. They are listed as vulnerable on the IUCN Red List.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

36. Consider the following statements about the Shyok river:

1. It is a tributary of the Indus River.
2. It originates at the Rimo Glacier

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

37. Consider the following statements about the United Nations Security Council:

1. It is a specialized agency of the United Nation.
2. It is charged with recommending the admission of new UN members to the General Assembly.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

38. Consider the following statements about the Gahirmatha Marine Sanctuary:

1. It is the world's largest nesting beach for Olive Ridley Turtles.
2. It is inundated by the rivers Brahmani, Baitarani, Dhamra, Pathsala.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

39. Consider the following statements about the Special Marriage Act, 1954:

1. Marriages solemnized under the Special Marriage Act are not governed by personal laws.
2. This Act extends to intending spouses who are both Indian nationals living abroad.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

40. With reference to the Central Pollution Control Board (CPCB), consider the following statements:

1. It is a statutory organisation, and was constituted under the Environment (Protection) Act, 1986.
2. It is entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

41. Consider the following statements about the National Innovation Foundation (NIF):

1. It is an autonomous body of the Ministry of Skill Development and Entrepreneurship.
2. It helps grassroots innovators and traditional knowledge holders get due recognition, respect and reward for their innovations.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

42. Which of the following defence agreements is/are signed by India-USA?

1. Basic Exchange and Cooperation Agreement (BECA)
2. Logistics Exchange Memorandum of Agreement (LEMOA)
3. Communications Compatibility and Security Agreement (COMCASA)

Choose the correct answer using the code given below:
a) 1 & 2 only b) 2 & 3 only
c) 1 & 3 only d) 1, 2 & 3

43. Consider the following statements about the ENVIS:

1. It supports and promotes research, development and innovation in environmental information technology.
2. It has been designed as the National Focal Point for INFOTERRA of the United Nations Environment Programme (UNEP).

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

44. Consider the following statements:

1. President of India can be removed only on the grounds of violation of Constitution of India
2. The process of removal of the President of India can start only in the Lok Sabha.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

45. Consider the following statements about the Mudumalai National Park:

1. It is part of the Nilgiri Biosphere Reserve.
2. It is a UNESCO World Heritage site.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

46. Consider the following statements about the Pradhan Mantri Kaushal Vikas Yojana:

1. It was launched for recognition and standardisation of skills.
2. National Skill Development Council (NSDC) has been made coordinating and driving agency for this scheme.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

47. With reference to the United Nations Environment Programme (UNEP), consider the following statements:

1. It is one of the implementing agencies for the Global Environment Facility.
2. It was established through the Stockholm Declaration.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

48. Consider the following statements about the Broadcast Audience Research Council:

1. It is a statutory body.
2. It uses Audio Watermarking technology to measure viewership of TV channels.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

49. Consider the following statements about the National Investigation Agency (NIA):

1. It can probe terror attacks targeting Indians and Indian interests abroad.
2. It is empowered to deal with terror related crimes across states without special permission from the states.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

50. Consider the following statements about the SWITCH UAV:

1. It is indigenously designed and developed by the DRDO.
2. It can be deployed at high altitudes and under harsh environments for day and night surveillance.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

51. Consider the following statements about the Kalaripayattu:

1. It is an ancient martial arts form from Kerala.
2. It is ascribed under the UNESCO List of Intangible Cultural Heritages from India.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

52. With reference to the Indian Star Tortoises, consider the following statements:

1. Found nowhere else in the world, the last of this critically endangered species is left in Assam.
2. Indian Star Tortoises are protected under the Schedule-1 of the Wildlife (Protection) Act, 1972.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

53. Consider the following statements:

1. Dark matter does not interact with gravity.
2. It is dark energy that drives the universe's ever-accelerating expansion.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

54. Consider the following statements about the Ashta Pradhan

1. It was a system of ministerial delegation in Mugal empire.
2. Amatya was interior minister and was responsible for managing internal affairs especially intelligence and espionage

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

55. Consider the following statements about the Fatehpur Sikri:

1. It was built by Akbar, in honour of Sufi saint Sheikh Salim Chisti.
2. It is a cultural UNESCO World Heritage Site in India

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

56. Consider the following statements about the Rafale jet:

1. It is a fourth-generation jet with both twin generation engines and Delta-wing.
2. It has ability to carry nuclear warheads and missiles.

Which of the statements given above is/are correct?

a) 1 only b) 2 only

c) Both 1 & 2 d) Neither 1 nor 2

57. Consider the following statements about the food price index:

1. It is published by the Food and Agriculture Organization.
2. It consists of the average of five commodity group price indices weighted with the average export shares.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

58. With reference to the International Nitrogen Initiative (INI), consider the following statements:

1. It is an international Programme setup under the sponsorship of UNEP.
2. It adopted the Melbourne Declaration, which calls for responsible Nitrogen Management for a sustainable future.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

59. Which of the following Indian legislative provisions deals with deepfakes?

1. Indian Penal Code
2. Information Technology Act, 2000
3. Information Technology Intermediary Guidelines (Amendment) Rules, 2018

Choose the correct answer using the code given below:

a) 1 & 2 only b) 2 only
c) 1, 2 & 3 only d) 3 only

60. Consider the following statements about the Alauddin Khilji's market control policy:

1. He set up four markets in the market control policy.
2. Kotwal was appointed as the Market Superintendent to make the market system successful.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

ANSWERS

1. a	16. a	31. d	46. c
2. a	17. c	32. c	47. c
3. c	18. d	33. b	48. b
4. a	19. b	34. a	49. c
5. b	20. b	35. d	50. b
6. c	21. b	36. c	51. a
7. c	22. a	37. b	52. b
8. d	23. a	38. a	53. b
9. d	24. d	39. c	54. d
10. b	25. d	40. b	55. c
11. c	26. a	41. b	56. c
12. a	27. b	42. d	57. c
13. b	28. c	43. c	58. b
14. a	29. b	44. a	59. c
15. c	30. c	45. c	60. a